THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

EDITED BY

THOS. WM. COWAN, F.G.S., F.L.S., F.R.M.S., &c., AND W. BROUGHTON CARR.

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Editorial, Notices, &c.

TO OUR READERS.

The post of Editor is anything but an enviable one, yet it is with considerable pleasure—not, however, unmixed with sorrow—that we take our seat once more in the editorial chair, and resume our duties at the beginning of the year 1890.

While wishing our readers and helpers a Happy New Year, we would also thank them for their assistance in making the *British Bee Journal* a success. The year 1888 was one of the most disastrous known; at any rate, owing to the great extension of the industry, the bad season was more extensively felt than ever before. Many who had only begun bee-keeping that year gave it up in disgust. The year just past has, on the whole, been a good one, and those who persevered through the bad season have reaped their reward. It is some gratification to find that, although from the same cause, or because they could not afford it, many gave up taking a bee paper, more have become subscribers, so that the *Journal*, instead of diminishing in circulation, has steadily increased, and this shows in a practical manner that the *British Bee Journal* is fulfilling its mission.

We thank our friends for the letters of commendation and encouragement we are constantly receiving, and can assure them that they act as a stimulus, and encourage us to persevere in our task. We cannot, however, hope to please every one, for there are some (very few we are happy to say) whose unselfishness will hardly extend beyond the gratification of their personal desires, and who think a paper should contain only just what they like, even when they know they are only paying one penny for what costs very much more to produce. We have several classes of readers, and all have to be thought of; and we should feel that we were not doing our duty were we to write for one class only and ignore the rest.

Whilst giving the largest space to practical matter, we do not forget—as one of our correspondents has pointed out—that the discussion of theories frequently leads to results important to the industry. Some take an especial interest in Associations, and the reports of these in our columns—given, necessarily, very briefly—form a bond of union amongst them. We also give the best and most valuable articles from all papers, whether American, French, or German, but we can only devote a certain amount of space to these, and articles of equal interest from any of our own British contributors have always the preference over any others.

We frequently have letters which induce us to persevere in the course we have adopted. One generous friend writes us very encouragingly. He says:—'You give so much for one penny that I wonder how you can do it, and it ought to satisfy every taste. If the whole of the contents do not suit all, every one has good value for his money in what suits him particularly. The biographies and portraits alone are worth much more than the subscription. Yours is, without exception, the ablest bee journal in the English language.'

With the new series we intend to follow the same course as heretofore, and give in the *B. B. J.* everything of interest to our readers and of use to the industry, so that it may be the expositor of bee-keeping in its widest sense. It is, and so long as it remains in our hands it will be, a perfectly independent paper, and free discussions on all subjects of interest will be allowed as before; but nothing of a personal or scurrilous nature, or anything likely to injure or hurt any one's feelings, will on any account be admitted.

We rely on our friends to help us to keep the *B. B. J.* up to its present standard,

which we know has been one chief cause of our success. A friend writes respecting this very subject: 'Allow me to congratulate you on the great improvement in the *B. B. J.* since it has been in your hands, and the great gain to bee keeping in keeping out the personalities correspondents indulged in formerly. I have been a constant subscriber from the time the *Journal* started, and am therefore able to judge. The moral tone of all the articles is quite refreshing in these days of scepticism.' Again, we repeat that it is a gratification to us that we have such unmistakable proof that our efforts are appreciated. Did we not feel that we possessed the confidence of our readers we would willingly retire, for editing imposes on us an immense amount of work, and takes time which we could otherwise employ. Now, we hope all will find sufficient in the *B. B. J.* to make it worth to them a penny a-week; but if they do not care for anything but just practical matter, they will, we hope, find what they require in the monthly, which will be devoted entirely to practical apiculture.

We stated that our pleasure was not altogether unmixed with sorrow. It is a pleasure to have to announce that we shall in future have the help of our friend, Mr. W. Broughton Carr, under whose management we have placed the monthly; but a sorrow that we have lost two such friends and able helpers as the Rev. G. Raynor and Mr. G. Henderson, who had both for so long and so well worked for the advancement of bee-keeping. They are no longer with us, but their works remain, and their influence will be felt for a long time. We would, in conclusion, ask our friends to make the *Journal* known amongst their friends and get us new subscribers, either for the weekly or the monthly, and we pledge ourselves to give our readers any advantage that may accrue from an increased circulation.

USEFUL HINTS.

A hearty greeting with the new year to all our readers, old and young, experienced and novices, and may it prove to each and all a year of happiness and prosperity, as well as to their bees. The old departs, and leaves some sad memories on our minds. The Rev. G. Raynor, who had charge of this department, is no more, and now Mr. G. Henderson, our worthy sub-editor, breathed his last after a few days' absence from work. Truly, 'in the midst of life we are in death!' But we must not brood over the sadness of the past, but look cheerfully to the future, and welcome the new year. The days are creeping out, fog and cloud will soon give place to sunshine, and our busy bees will soon again be flitting from flower to flower, carrying home the precious burdens of pollen to feed the developing brood. But we must not forget that hitherto we have had most mild and open weather, and that we cannot hope to escape without a spell of cold, and even snow may cover the ground when we least expect it. Woe betide the bee-keeper who is not prepared for it, or who thinks that with the present display of primroses spring has appeared.

During the year considerable progress has been made in apiculture, and 1889 will long be remembered in connexion with the gracious patronage of Her Majesty, who visited the bee department at Windsor.

Amongst new books we have a new edition, almost entirely rewritten, of the *British Bee-keeper's Guide-book*, a new edition of Langstroth's *Bees and Bee-keeping*, revised by Dadant and Son, and also Doolittle's *Queen-rearing*, besides a number of books in German and French. What new books the year will bring forth remains to be seen, but we know several are in preparation.

Entrances, Manipulations, Quilts, etc.—It seems almost out of place to talk of these matters now, but we would remind our readers that, should they suspect damp getting into their hives through leaky roofs, to take advantage of any warm, sunshiny day, to change the quilts, taking care not to disturb the bees more than is absolutely necessary. Sometimes, if not very damp, the removal of the roof for a couple of hours would be all that was needed. Entrances should be kept at full summer width, and should occasionally be cleared of dead bees, should such be found. It is just the weak colonies, who are least able to help themselves, who are most likely to get blocked. In the event of snow falling, carefully shade all entrances. With a little care and forethought this shading can be so arranged that it will also prevent the snow blocking the entrance. When changing quilts the amount of sealed honey near the tops of the frames should be noted, and only if required food should be supplied in the shape of candy beneath the renewed quilts, and great care taken that the quilts fit properly and cover the frames completely.

Examination must be made on fine, warm days *only*, and our watchword for this month must be *rest* and *quiet repose*.

Beware of bluetits and mice, keep the hives snug and warm with plenty of covering, disturb as little as possible, and make all the necessary preparations for the busy time coming in spring, and when the season is over you will reap the due reward of foresight and industry.

Feeding should not be delayed where there is the slightest doubt as to the sufficiency of stores. Soft candy will be found excellent feeding. A two-pound cake of this placed *on*

the bottom quilt over the feed-hole will carry on a stock nicely until the days lengthen out. Much as we deprecate any disturbance of our stocks during winter, it may, taking into account the extended period of dull, damp, mild weather that we have had, be good policy to give all winter packings an examination, removing any that are damp, replacing them *instantly* with *warm* and dry material. Bear in mind that for some time yet the population of a colony does not increase, but rather the reverse, and very slight predisposing circumstances in either direction oftentimes make all the difference between success and disaster. *Dysentery* frequently shows its presence after dull, damp weather; any stock suffering from it should on the first favourable day be transferred to a clean hive, and if the case is very bad, fresh combs should also be given, but such combs should have been placed in a warm room for a few hours before being given, otherwise they will be like slabs of ice. At least three of them should be well filled with stores; the two in the centre would be best nearly empty. Any hives which may have become tilted or otherwise out of the level should now be restored to a proper position, otherwise straight combs and good sections cannot be obtained.

Any rearrangement of the stocks at present in the apiary should be finally decided upon, and the new stands placed in readiness, so that the stocks may be quietly conveyed thereto as opportunity may offer, always bearing in mind that only after a lengthy confinement to the hive of, say, a month at least, should any attempt be made to shift a hive more than three feet. Bees may be gradually shifted by three feet at a time, but only after they have been on the wing. Be very gentle and avoid jarring.

Foul brood, judging from general rumour, appears to be less prevalent than of late years, and we are therefore more persistent in urging that every care may be exercised in trying to eradicate this disease, not only in our own apiaries, but also in those of our neighbours. If the owner is indifferent, then it becomes a matter resulting in our personal benefit if we can pursuade him to let us undertake the cure.

The present raw, damp, chilly weather is far more trying to bees than good hard frost. Get candy ready, so that it may be placed on feed-holes at the first favourable opportunity.

Probably four-way sections may never become so generally used as the two-way, owing to the greater difficulty in packing them, but certainly, so far as we can learn, all who use thom find them, as a rule, more compactly built out and filled. In fact pop-holes are very rare. We would therefore recommend any of our readers who may not yet have given them a trial to get a few in against the requirements of next season.

Although there is little doubt that our English bee (the common so-called black bee) is an exemplification of the survival of the fittest, yet introduction of fresh blood, when undertaken judiciously, is, in our opinion, advantageous. Still, the fact should never be lost sight of that, owing to the peculiar configuration of our island home, we have as it were little bits of various climates. For this reason some considerable care should be exercised before making sweeping alterations in the race of bees in our apiary. The bees which, for instance, may thrive well and give a good surplus in the Lincolnshire fens might be found not only unprofitable, but probably experience considerable difficulty in surviving, say, on our Yorkshire moors. Thus, should a new variety be introduced, and fail to prove so highly successful as its owner might have wished, do not hasten to condemn it as useless. It may be that the locality, or the particular season, is against it being able to prove its worth; or it may be that the variety is suitable to the district, but an unworthy representative has been selected. Bees, like human beings, vary much in their adaptability to surroundings, and, to continue the parallel, it is not always that those raised from a good stock perpetuate the good qualities of their predecessors, be they bees or human beings. Were it not for this constant variation, the world would ere this have been peopled by two sharply defined classes, the superbly good and the absolutely bad.

The Carniolan seems well adapted as a general purpose bee, and it has one redeeming feature, that a hybrid between black drone and Carniolan queen is not so vicious as the cross between black drone and Ligurian queen. Most of us know enough of the latter hybrid.

BEES INSIDE—WINTER WORK, ETC.

Of late years in Canada the tendency has been to put bees into winter quarters *earlier* from year to year. We used to put them in about the holidays, and sometimes later. There were reasons for this—good and bad. The bad one was negative, being ignorance of the fact that they could live in health through so long a confinement without flight—an actual six months. The good one was inability or incompetence to so prepare and put them away that they would be able to stand such protracted confinement. In course of time, however, we learned that a healthy colony of bees properly put away will stand six months' confinement in winter quarters.

We also learned how to prepare them so that they would stand it. This was a long stride forward. I do not mean to say that it is necessary more than occasionally in this climate to leave bees in winter quarters for six months. In the course of years, however, it is once in a while judicious to do so, and decidedly advantageous to the bees. When severe freezing weather sets in as early as the 1st of November, and winter 'lingers in the lap of spring' till the 1st of May, they are generally better in than out.

In the autumn of '87 I put bees in winter quarters, November 8th, and set them out the

following spring, May 10th, being a confinement of six months and two days. The spring of '85 being cold and backward, it was not till about the middle of May that I removed the last of them from the cellar. Of course, those showing symptoms of disease and disquiet were removed about a month earlier for a cleansing flight, but were not again returned to the cellar. A fact worthy of note is that those last taken out were as strong in numbers, and well equipped for the honey flow when it came, as those earlier out. But bees left in so late must have a supply of pollen for brood-rearing, and must be watered if needs be, or they will surely come to grief.

This season I have been later than usual in putting the bees into winter quarters, owing to a fine autumn, with a treacherous ending, however. The fine weather was immediately succeeded by nearly a whole week of drizzling rain (genuine English weather, I suppose); and this treat was promptly followed up by a large-sized snow-storm and some snapping cold weather. I was in a 'swither.' The bees were all out, and my mind was troubled. As I always want them dry and nice when I put them in, the little time intervening between the rain and the snow-storm I was waiting for them to dry off a little. But on came the snow and the cold, and I had to make the best of a bad 'fix.' The temperature was getting down to zero, and actually got below it before I got all the bees in heir quarters, which was about the 1st of December.

The hives being frosty, and the bees stiffened by the hard freezing, I kept the temperature of the repository up to about 55° Fahr. and upwards to right matters as far as possible. This dried off the hives inside and out, and probably freed the bees in part from the effects of the heavy feed caused by the cold. This latter is probably a heterodox notion, but may be true all the same. Nearly every truth, in the early stages, is in the same box.

From certain experiences I have had, I am strongly of the opinion that the heating and 'sweating out' process, applied to the bees under such circumstances, may have the beneficial effect of a 'cleansing flight.' I had rather, however, the bees had not been *feeding* against *frost*. But as the other conditions of successful wintering are fairly favourable, I apprehend no serious results. These conditions are—plenty of food of a good quality, a good frost-proof repository, which will be kept at a uniform temperature of about 45° Fahr. up to March, when brooding commences, when temperature will be raised 5° to 10°.

Winter Work.—The winter work inside among the bees is very limited in extent, though important. The dead bees should be removed from the entrances from time to time, by means of a wire with a crook on the end of it, or something else; and these again should be removed from the floor of the repository, and not allowed to accumulate and decay. The mice should be looked after and poisoned should they trouble. Unslaked lime should be kept constantly in the cellar, exposed, where many colonies are stored away, and the temperature and ventilation looked after.

But the apiarist's winter work is more outside than inside the repository. This is the time for getting hives and other fixtures ready for the coming season. And this is the time, also, for reading, and thinking, and planning. This is the time for reading the ripe (and some unripe) thoughts and experiences of others in the *Bee Journals*, and digesting them and assimilating them—that is, all that are digestible, and that can, with profit, be assimilated. Then there are the standard works; but, in truth, these soon get behind the times, owing to the fact that apiculture is a highly progressive art, which is apparently, as yet, some distance this side of perfection.—Allen Pringle, *Selby, Ontario, December 18th*, 1889.

P.S.—Snow gone, and weather mild and spring-like again.

PROFITABLE BEE-KEEPING.

Our Scottish cousin and myself must have an invisible bond of friendship, extending across the Atlantic, as we appear to have an affinity for each other. We certainly agree on one point, and that is this, that our bees shall pay their own expenses. There is one thing which she tells us which is valuable to small bee-keepers, and that is, partnership in an extractor. Where there is only a limited number of bees kept, and bee-keepers live near to each other, and several would unite in buying an extracting-can, extractor, and knife, the outlay would be but a trifle and the advantage great. Persons have told me that they would like to extract honey, but as they had but few colonies it would not pay them to invest in the necessary tools to do it with. I fail to see any advantage in tying two frames together to secure such wide combs. They must be heavy to handle and more liable to break. I am not very strong, and I prefer everything about the apiary as light as possible. When I first commenced bee-keeping I had the bee-fever badly. When a minister called who was also a bee-keeper, he said, 'Take care, take care, Sister Harrison, or you will get the bee-fever badly.' Well, I am happy to say that I have the bee-fever yet, and hope to continue to have it as long as I am able to walk among my hives.

Aim at Excellence.

Let us, at the commencement of this new year, review the past, and see wherein we could have done better. If we have let our swarms run away, resolve that during another season we will be more watchful, and that it shall not be our fault if every colony we have in the spring do not yield a fair income. During the cessation of active labour in the apiary, review the latest editions of standard works on the honey bee, and see in what way the head lights are going. Wherever practicable, during our long winter evenings, bee-keepers might assemble at some

convenient place and give and receive instruction, for there are persons who cannot learn in any other way.

We have estimated the number of hives that we shall need, and the lumber is now under cover, to be dry when needed. I try to have everything in readiness as much as possible for the busy season. Have my bee-hats, gloves, and bee-dress in order, roll up rags to burn in the smokers, and remelt wax and have it in readiness for market. During February I employ in the house a dressmaker, and have our clothing made for another summer, so as to be able to give my attention as far as possible to the bees. I enjoy working in the apiary, but it would take away all the pleasure if other duties were pressing upon me at the same time.—Mrs. L. Harrison, 821 *Hurlburt Street, Peoria, Ill.*

CONVINCING TESTIMONY OF THE VALUE OF BEE-STINGS AS A REMEDY.

I have seen several statements in *Gleanings* in regard to rheumatism being cured by the sting of bees. I will now give you some of my experience, and a few facts, which have placed *Apis melifica* very high in my estimation as a rheumatic and also as a kidney and bladder remedy. I give it in many cases for these diseases when indicated.

I do not recommend it in *all* cases; but it is worthy of a trial, and if it gives relief it will nearly always effect a cure if continued for some time. As rheumatism is often caused from diseases of the kidneys and bladder, I deem it a favourable sign when the flow of urine is increased, if ever so little, by its use. It matters very little which way it is introduced into the system, just so it gets there. I have used the tincture many years in my general practice, and I should not like to dispense with it. Its use has a broad field in the healing art, and is not confined by any means to the above-mentioned diseases. In the treatment of rheumatism I should rather prefer the direct sting from the bee, if it were possible to apply unbeknown to the patient, which I have succeeded in in a few instances, for I fear that to make public the mode of application, would have a tendency to elicit unfavourable comments from the medical fraternity and a criticising public.

In the month of January, about twelve years ago, I was called to the country to see Mr. J. B. I found him confined to his bed with inflammatory rheumatism. The attack was very severe—considerable swelling and intense pain. Not having any *Apis melifica* in my case, I inquired if they had any bees. I was answered they had, and I requested to be taken to a hive. I procured a number, and returned to my patient. I gave him one sting before he knew what I was doing. He said, 'Oh my! Dr. Gress! do you intend killing me?' I assured him it was necessary to give him relief in that way, or he would have to continue suffering until I returned to town and procured other remedies. After arguing a few moments, I gave him a second pop, and then again a third, fourth, fifth, and I think in all about eight, when he commenced to enter serious objections, so I patiently awaited results, which soon followed in the way of relief from pain, free secretion of urine, and perspiration. I left one hour after, with advice to use the little doctors in the morning. In the afternoon he came to town to see me, and during our conversation he stated he would like to have me make a statement in the paper in regard to the great benefit he had derived. I objected, for reasons before given. But I am frank to admit that I never attended him for any more rheumatism, as the bees were always his doctor in that particular disease.

My second experience was with a negro who applied at the office, suffering with inflammatory rheumatism. I requested him to call at two o'clock, as I had just received a call. While at home at dinner-time I procured some of my cross Italian bees, and on returning to my office I turned them loose in my consulting-room, so I could go in and pick them up as I should require them. I examined the limb, found it swollen and painful. Using his own words, he said, 'Doctor, if you don't do something for me, I shall be compelled to get some one to carry me home. I am growing worse every minute.' I told him I would use the medicated needle, as it would act quick. I secured one of my little doctors, hiding it with a piece of tissue paper. I quickly applied it to a sensitive spot. Says he, 'Boss, that needle am pretty sharp,' and began to scratch the place, while I went in for another Italian bee. Returning, I gave him another pop. He then wanted to see the needle. Of course I did not show him what I had used. I then went back to 'put some more medicine on the needle,' and on my return he exclaimed, 'Say, boss, that pain am getting better; but it am smarting just like the sting of a wasp.' I made no answer, but kept on applying until I had stung him about ten times. Perspiration now commenced to start, when he got up, stating he was free from pain. He called the next day, stating he gradually grew better, and there was scarcely any swelling left. I have used the tincture of apis with almost the same results, although for prompt relief I prefer the 'little doctors.'—P. C. Gress, M.D., *Atchison, Kan.—Gleanings.*

BEE-KEEPING—THE IMPORTANCE AND DEVELOPMENT OF BEE-CULTURE.

The honey bee—and it is a wonderful insect—has been associated with the history of man through all the ages of the past. From time immemorial honey has been used, and highly esteemed as an article of food; and to the ancients no higher praise could be spoken of any country, than to say it was 'a land flowing with milk and honey.'

The habits of the bees have been carefully studied by many learned and scientific men in ancient as well as modern times, and there is perhaps nothing found in the annals of natural history more interesting and wonderful than may be found in the internal affairs of a beehive. There is as much order and system in a beehive as can be found in the best regulated governments of most enlightened and civilised nations; yet bees are not guided by reason or logic, nor philosophy, but are actuated entirely by that wonderful endowment, 'Instinct.'

Bees are not given to new notions—they do things to-day just as their ancestors did a thousand years ago, and he who would succeed in bee-keeping must work in harmony with their natural habits, and aid them in every possible way as circumstances may require, and thus encourage them to more vigorous action: but any attempt to controvert their natural impulse is sure to result in failure, and whether the act be intentional or unintentional, the result will be the same, hence the necessity of being educated to the business.

No set or fixed rules can be given for the management of bees which can be invariably followed under all circumstances to ensure the desired results. The right thing to do with one colony at a given time might not be just the right thing to do with another colony at the same time, owing to the difference in their condition and surrounding circumstances. The variation in the seasons, the changes in the weather, and the condition of the atmosphere, all have an important bearing upon the secretion of nectar in the flowers, and consequently upon the time and manner as to when and how the bees should be manipulated. There are many things involved in bee-keeping which, to the uninitiated, are impenetrable mysteries.

To be a thorough bee-master requires as much intelligence, forethought, and skill as to be a good lawyer, physician, or any other professional: and withal a clear perception of the relation between cause and effect.

Some people seem inclined to believe that anybody can keep bees, thinking that all that is required is, to put them in a hive in some out-of-the-way place, and they will 'work for nothing and board themselves'—and so they may, but if their owner desires to obtain any surplus for his own table, or for the market, he must give them further care; and unless he has a heart for the work, so that he finds some pleasure in caring for them, he had better not attempt to keep them at all, as they will only prove a source of annoyance without profit.

In short, to make a successful bee-keeper requires a sort of special gift, a natural aptness for the business, the faculty of perceiving what needs to be done, and an inclination to do it promptly. The old Spanish adage, 'Never do anything to-day which can be put off until to-morrow,' does not work well in bee-keeping—it savours too much of slothfulness; but the Anglo-Saxon maxim, 'Never leave until to-morrow anything which can as well be done to-day,' will be found to be much more appropriate, being much more in harmony with the indefatigable activity of the bees. There is always a right time for doing things—not too soon, and not too late.

We are living in a progressive age—no other period in the world's history has ever been signalised by such wonderful developments in science and art as have been brought to light in this nineteenth century. The great labyrinths of Nature's mysteries have seemed to be set open unto men, and forces and principles which have lain dormant since the beginning of creation have in our days been brought forth and made subservient to the will of man with astonishing results.

When we take a retrospective view of these things, are we not warranted in the conclusion that the hand of God is manifested in the development of events according to the world's need? And whilst such unparalleled progress has been made in other directions, bee-keeping has also received a share of attention; and I feel quite safe in saying that more progress has been made in the management of bees during the latter part of this century than during all the thousands of years of previous history.

Bee-keeping in its present stage of development is fully entitled to take rank as one of the arts: and were it not for the variableness of the season, the changeableness of the weather, and other atmospheric conditions upon which the secretion of nectar in the flowers is so largely dependent, and upon which hinges the turning-point of success or failure, all of which are entirely beyond our control—I say, were it not for these uncertainties, then bee-keeping might very properly be classed as a science; but inasmuch as the variation of seasons necessitates a variation in the management of the bees, therefore no set rules can be established which will work satisfactorily under all the varied circumstances that may arise; but the judgment and skill of the apiarist need to be constantly exercised in order to discover just what needs to be done, and when and how to do it.

There are many other matters to be attended to in a well-ordered apiary besides taking care of the honey. Every wide-awake apiarist of these days takes as much interest (and I might say, pride) in the rearing of his queen bees as a good farmer does in raising fine cattle or horses: and there are numerous apiarists who do quite an extensive business in rearing queen bees for sale, and send them all over the country to customers, the price ranging from one to ten dollars, and upwards, for a single queen bee, according to her pedigree, purity of blood, &c., and whether she is home-bred or imported.

With many people a bee is a bee, and they know no difference in the breeds; but with the advanced apiarist it is considered a matter of considerable importance. Each has his favourite breed, the same as with other stockmen. Years ago the brown German bee was the only kind kept in the country, but of late years we have imported Italian bees, Cyprian bees, Syrian bees,

Holy Land bees, Carniolan bees, Syrio-Albino bees, and an endless variety of hybrids have arisen by crossing these breeds, some of which are perhaps superior to any of the 'pure-blooded' bees for the real business in gathering honey and for comb-building qualities.

Bee-keeping is of late years becoming quite an important industry, the products of which are perhaps ten times greater in this country than it was twenty-five years ago. The modern facilities for the management of bees have induced many to engage in this pursuit, until it is now claimed that there are in round numbers 300,000 bee-keepers in the United States, and their colonies of bees are numbered by the million, with an aggregate annual production estimated at 50,000 tons of honey!

Some are becoming alarmed, fearing that the business is being overdone, because the supply of honey is greater than the market will take at paying prices; but we have this thought to console us, that whatever is lost to the producer in consequence of low prices, will be so much saved to the consumer, and so the account will stand even, and honey is just as sweet now as ever, all the same.

Although the manipulations of an apiary are as widely different from farm-work as the practice of medicine is different from the practice of law, yet, nevertheless, a few bees in the neighbourhood are a real benefit to every farmer or fruit-grower, because the bees evidently perform a very important part in the fertilisation of the blossoms of fruit-bearing trees and seed-bearing plants, by mixing the pollen dust with the stigma of the flowers when in their search for honey, thereby causing more abundant fruitage. Therefore, let the farmer, the fruit-grower, and the bee-keeper live in harmony and good-will, for that which promotes the interest of one will promote the interest of all. Give the bees a chance.

The bees are busy things you know,
And when there comes a honey-flow
You see them hurry to and fro,
  So quick and fast;
From very early morning light,
They spend each day in busy flight,
And they never sleep by night
  Till the harvest's past.

They do their work with eager haste—
Allow no time to run to waste;
Their honey hath delicious taste,
  As each one knows.
There's a great deal more that might be said,
But if I spin a lengthy thread,
You have not time to hear it read—
  So here I close.

—Joshua Bull, *Seymour, Wis.—American Bee Journal.*

SOMETHING IN REGARD TO APHIDÆ.

I call attention to it because *Gleanings*, doubtless, is read by many who are interested in hop culture, and consequently in the *hop-plant* louse. The true history, as recently worked out, is as follows:—The eggs are deposited on the *plum* in the fall by perfect wingless females. In the spring, as the leaves put forth, these hatch into wingless *agamic* females; that is, females that can reproduce without the aid of males; and these bring forth a generation, the *second*, wingless like themselves. The third generation, which appears during the early days of June, are *winged* agamic females, and these migrate to the *hop*, which by this time is far enough developed to furnish food to the plant lice; and these, after going to the hop, produce the fourth generation, which are again *wingless*, and these in turn produce other wingless forms, and thus on through the summer, generation after generation, till late in August or early in September, when a generation of winged forms, about the twelfth of the year's product, are brought forth. These, too, are agamic, as all preceding have been; also at this time all those produced *by* the surviving members of previous generations, even as far back as the fifth, *have wings*. In other words, all those produced late in August or early in September, are *agamic winged* females, no matter from what generation they come. Then the very late members of the twelfth generation, late in September, are winged *males*. The winged females, just previously produced, fly away to the plum, and there begin to produce, not agamic, but perfect wingless females, which are full-grown by the last of September, when the winged males, above mentioned, fly to the plum, where the perfect wingless females are, and here they mate, and winter eggs are soon deposited about the base of the twigs, and thus provision is made for the same round of life-history the following year. It seems that, if the perfect wingless females of this last generation are deposited upon the hop or any other plant, except the *plum*, they will not live, the latter being necessary to their development.

In the life-history as above given, we find an illustration of that wonderful adaptability so often met with in nature. These little creatures have no use for wings in the spring till the *third* generation is produced, and the *hop* is ready to receive them; then after the migration no further use for them till fall, and it becomes necessary to return to the plum for a late fall, winter, and early spring abode. Nature is not prodigal in her resources, producing only that which is necessary to carry out her designs, giving wings when needed; but when not required, they are not developed. Often it is difficult to interpret those wonderful adaptabilities in nature; but here, at least, we may conjecture why this remarkable life-history. The hop-vines die, and are likely to be removed and burned, or otherwise destroyed—perhaps made into a compost-heap; and if the plant-louse eggs were left upon these, it would be only by mere chance that they would escape destruction; and even if they did escape, the young, when hatched in the spring, would not likely be where they could get suitable food; hence a wise Creator ordained that the winter eggs should be left where destruction would be less likely to overtake them,

and where the young would have fresh leaves to feed upon when hatched. Indeed, here, as so often everywhere, the devout student of nature may exclaim, 'All thy works are truly and wonderfully made.'—B. F. Coons, *Connecticut Agricultural School, Storrs, Ct.—Gleanings.*

BEE-KEEPING FOR COTTAGERS.

X.

Varieties of Bees.—To the cottager this part of the subject of bee-keeping is not supposed to be of much importance; certainly, to the great majority it is not. But it must not be forgotten that among bee-keepers who are included in the term cottager there are some—notably Mr. John Walton—of whose proficiency in the art of bee-keeping we cannot speak too highly, and who know a great deal, from actual experience, of the different varieties of bees.

Among the chief varieties I will mention only *Cyprian, Ligurian, Carniolan,* and *English,* or, as it is often termed, German brown.

Cyprian.—These are said to be the handsomest and best bees in the world. Handsome they undoubtedly are, as they are of a most beautiful golden colour, caused by their having golden bands across the abdomen. The queens are exceedingly prolific, and the bees are first-class honey gatherers. They are unfortunately uncertain in temper. I have manipulated them at times without any protection or intimidant, and at other times a look has been enough to raise their ire, and cause me, from a vivid recollection of their previous treatment of me, to beat a hasty retreat. When crossed with other races, the progeny are at times unmanageable, and almost certain to spoil the morals of the bee-keeper. I therefore say, 'By all means let them alone.'

Ligurian.—The Ligurian or Italian Alp bee is so named because it is found principally near the Gulf of Liguria in Italy, and, like the Cyprian, it is a yellow-banded bee. The queens are prolific, and the bees good honey gatherers. If either Cyprian or Ligurian bees are kept, it must be for the production of extracted honey, as both races seal comb honey, so that it has a dark, damp appearance. This is because the cappings of the cells lie close upon the honey. Blacks and Carniolans leave an air-space between the surface of the honey and the capping, which gives the sealing a lighter appearance.

Ligurians (or any trace of Ligurian blood) are strongly objected to by honey producers of my acquaintance both in Scotland and Wales, though I have not found either, in this district, a disadvantage. Blacks crossed with Ligurians produce better workers, though more ill-tempered bees, which is a point not likely to be ignored, as a good 'business end' is not a desirable feature in a bee.

Carniolans.—These are called the ladies' bees, and compared with the other foreign races they richly deserve that proud title. They take their name from Carniola, in Austria. The queen is most prolific and the workers most industrious. Of all foreign races there is not one that has been so generally praised as the Carniolan. Carniolan bees are larger than our English bees, and not at first sight easily distinguished from them. They are sometimes called the silver-banded bees, the hairs overlapping the segments of the abdomen being silvery-coloured.

The Carniolan are the largest and the Cyprian the smallest of the above-mentioned races. As an all-round bee, I do not think the Carniolan can be beaten.

Crosses.—When one or a few foreign queens are introduced into any apiary, it is, unless isolated, impossible to keep the stocks pure, and then an undesirable cross may be produced. It is well known that the crossing of domestic animals is carried out for the purpose of producing more desirable qualities, and, therefore, if foreign bees are introduced it should be more with a desire to improve the English bee by crossing.

The most valuable bees I have ever had for honey gathering were produced by Carniolan queens which had mated with Cyprian drones; but having banished Cyprians entirely from my apiary, I permit only one cross, and that is between the English and Carniolan, both of which races and their crosses I prefer to any other.

Where the cottager has no desire to introduce foreign blood—and I do not recommend it—I do say by all means get an occasional swarm from an apiary beyond the range of your own drones, as this infusion of fresh blood will have a very beneficial effect.

Since the commencement of these articles I have had numerous inquiries from readers, and I have answered their queries by post, though 'licking penny stamps' not enclosed with query lessens the pleasure I feel in giving the information sought. Many of these answers would, I believe, be of interest to all cottagers and amateurs, and I shall therefore make a selection with which to close this series of articles. I shall be glad to receive further queries early in the month, in order that the replies may be included in the next issue of the *Adviser.*—C. N. White, *Somersham, Hunts.*

DEATH OF A SCOTCH BEE-KEEPER.

We regret to announce this week the death of Mr. John McDowall, builder, Lachans, near Stranraer, who died on the 17th inst. Mr. McDowall was up till lately in his usual health, having during the past season been attending and competing at some of our Scotch shows. As a bee-keeper and successful competitor he was well known in the south of Scotland, and during the past year gained, with other prizes, the handsome challenge medal presented by the Rev. A. Duff Watson to the Wigtownshire Bee-keepers' Association.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

A Commiteee meeting was held at 105 Jermyn Street on Tuesday, December 17th, the Hon. and Rev. H. Bligh in the chair. There were also present Captain Bush, R.N., Rev. J. L. Seager, J. Garratt, and the Secretary. Letters were read from Mr. McClure, Dr. Bartrum, and the Treasurer, regretting their inability to be present. The business before the meeting was principally confined to matters of a routine character, not of public interest. The Rev. J. L. Seager suggested that during the forthcoming year endeavours should be made to hold public meetings in various important centres, at which the objects of the Association and the results of its work might be put forward with the view of increasing the membership. It was resolved to hold an evening meeting on the day of the Annual General Meeting, viz., Tuesday, February 18th.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," c/o Messrs. *Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see* 1*st page of Advertisements*).

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

COUNTY ASSOCIATIONS AND THEIR WORK.

[1.] The year is almost run out, and I find myself in the position of all those whom I mentally abuse as the apathetic members of this County Association who are allowing *another* year to pass without raising their voice. I honour the good and noble work of the British Bee-keeping Association far too highly to keep silent any longer. It is hard upon us members to think that our county, which ought this year to have taken particular pride in coming forward at the greatest of the agricultural shows, was simply nowhere. Not from want of money, for our subscriptions had all been paid in, but from want of all the official machinery constituting an Association. A year of idleness and uselessness in promoting the true interests of our agricultural districts, and disgracing the purpose of our parent Association, to which we owe so much, this is the only result I see of our existence in this passing year. How are we to obtain any redress? By bringing all details and particulars before the public through the medium of your columns, or by direct appeal to the British Bee-keeping Association, for I would fain know whether it counts us still among its affiliated counties, though, for the present, I refrain from giving its name.—AN ILL-SATISFIED MEMBER.

[Yes, it is still an affiliated Association.—ED.]

MARKETING HONEY, ETC.

[2.] Now the bees and bee-keepers are enjoying a wee rest after the toils of another season, which here in Lincolnshire, though scarcely half as long was quite equal to, if not better than, that of 1887. Although in Jubilee year our bees had a grand uninterrupted honey flow for six weeks, yet my observations show that the amount of surplus honey was not so great as that of 1889, although practically our honey flow did not extend beyond three weeks this year. I never recollect honey coming in so fast, but fortunately both my bees and I were quite ready to benefit in the goodness of a kind Providence, which favoured us with bright, warm sunshine, just as the clover came into bloom. To give you some idea of the way my bees can work, allow me to say that I have eight stocks; two of these I worked for honey only, and I took 100 lbs. from each. A third one produced 115 lbs. surplus. I did not take any from below the queen-excluder zinc. Why cannot every hive be got into a fit condition to do work like this? I think, with care, ten out of every twelve might.

But to resume, as I find my pen is running away with me from my text, 'Marketing Honey.' In my opinion, this is a subject which is not ventilated enough. Why, Sir, out of fifty who tell us how to manage our bees before, during, and after the honey flow, scarcely one tells us how and where to find a market for our produce. Of course, no definite lines can be laid down which shall be alike suitable for all bee-keepers in town and country, neighbourhoods where there are many gentry, or mostly working people. The bee-keeper should judge from his surroundings whether it will pay best to produce either comb or extracted honey solely, or some of both. But his real difficulty is, how he shall sell it, and I am thinking more especially of the country bee-keeper who has, say, ten or twelve hives, which he wants to assist him in paying his rent. Of course, to be a successful bee-keeper a man must be tidy, clean, and intelligent. In most districts it is best to have both comb and extracted honey for sale, and should you fortunately be in a district where many gentry live, it will be well to work rather more than half your hives for comb honey; but if you are in a poor neighbourhood it will not pay you to work many for comb honey. I give these particulars because I am going to

strongly advise your readers to work up a home market. Never, except as a last resource, sell your honey to Mr. Middleman. Go to the fountain head, find the customer, and sell for yourself. You will find the extra 2*d.* or 3*d.* per lb. very acceptable. To succeed, you must put your honey up nicely and make it as attractive as possible. I find it pays to bottle it up. For my poorer customers I use tie-over bottles, which I sell at 9*d.* or 10*d.* per lb., and for those who do not mind paying 1*s.* I use a metal screw-cap bottle. A neat label adds greatly to the appearance and, as a rule, helps the sale wonderfully. The one I use is as follows:—

PURE ENGLISH (VILLAGE) HONEY
From the apiary of .....
at .....
Obtained on the new and approved system.
Gathered chiefly from white clover.
WARRANTED PURE.
Subject to analysis or microscopic test, if required.

This is merely as an idea how to start your label. It is easy to suit your particular district. See that the bottles are not only clean but well polished. I prefer 1-lb. sections with a full sheet of foundation, as I get them better filled. Being well finished at the bottom, they travel better, which is a great consideration when sending them by rail, which you may have the opportunity of doing at 1*s.* to 1*s.* 3*d.* each. Avoid touching them with sticky fingers. Glazed sections travel best and keep best, but as you don't want to keep all of them, look round the corners for customers. Nice samples, neatly arranged in a basket, are sure to get customers. Never offer honey for sale when making a trade unless you can show both sorts. It prevents a denial oftentimes. If you live near the high-road a neat sign—'PURE HONEY SOLD HERE'—will frequently help. If any gentry whom you know live too far away for you to call, write a polite note asking to be allowed to send a few samples of honey on approval. Pay the carriage, be sure to send a tidy sample, and carefully wrap each section in clean paper. I find hay fills up all spare spaces nicely, and so keeps everything from shifting. Label the package, 'Honey-comb, with care.' Try all means to get hold of every visitor or new-comer; show them your honey, get them interested in your bees. Do not begrudge giving any friend who may be leaving the village a sample or two of your honey. They are almost sure to get you a customer, very likely for a dozen or more. Under no circumstances store your honey away in a cold, damp cupboard, and then sit down to wait for customers to come and buy it. Recollect that if the mountain will not come to Mahomet, then Mahomet must go to the mountain. Push your extracted honey more among your poorer customers, and do not hold out too much for a high price, as oftentimes a penny a pound will make all the difference between getting and losing a customer.

Let me advise you not to be stingy, but give samples away, especially in districts where you have few customers. I hope these few hints may be of use to some brother bee-keeper who at present has a difficulty in selling his honey.—J. W. BLANKLEY.

[We have pleasure in again hearing from our correspondent. We know him to be a thoroughly practical bee-keeper, who (although he has but little spare time after his day's work) manages his apiary with profitable results. We shall at all times be pleased to hear from him. Perhaps some day he will oblige us with his system for getting his bees strong enough to work so well.—ED.]

BORGUE HONEY AT CASTLE DOUGLAS SHOW.

[3.] I hope I may be able to put Mr. Dunlop right on the above subject. I accidentally met with the party who exhibited Borgue honey at Castle Douglas. After reading Mr. Dunlop's article (December 24, page 528), I wrote the party, inquiring particulars. His reply was to the effect that the sample was *not* the prize honey 'as it was sold at the show,' but it was guaranteed to be as good as the prize honey. At the same time he was informed that Borgue people were not going to exhibit honey at Castle Douglas, so he thought he was justified in showing it *for* Borgue, and if it had won a prize he would have advertised the fact. Now the question comes in, would the party who won the prize at Borgue for run honey have no more as good as the 4 lbs. staged at the show? It seems there was, when there was more sold guaranteed as good as the prize sample. Can Mr. Dunlop give us any information as to what kept Borgue people from exhibiting at Castle Douglas? If there is anything in reason I am sure the Committee will try and remedy it, to draw Borgue exhibitors out another season.—W. HOGG, *Castle Douglas.*

BORGUE HONEY AT THE CASTLE DOUGLAS SHOW.

[4.] As Mr. Dunlop is wandering further from the point at issue than it is my intention to follow, I shall only allude to one or two sentences in his last letter (page 528 of *Journal*) bearing directly on the subject. I shall then leave your readers to decide whether or not I have proved the statements I ventured to make, viz., that Borgue honey competed at the Castle Douglas Show, *and was beaten there.* It is not necessary for me to prove whether it was first, second, or any other prize honey that was staged at Castle Douglas—that is outside the question—so long as I have shown conclusively that Borgue honey was *actually* staged

at the above show and beaten, in proof of which I quoted from a correspondent's postcard of 25th November.

However, as it seems so difficult a pill for Mr. Dunlop and the Borgue] hands to swallow, permit me to quote from another correspondent's letter, dated December 2nd, taken haphazard from amongst several others of the same strain, viz.:—'Mr. Dunlop was correct in his reply. There were none of the Borgue bee-keepers entered at the Castle Douglas Show in the open competition, but it is equally true that Borgue honey was shown in that class at Castle Douglas. A gentleman of my acquaintance, who is a great upholder of Borgue honey, on hearing that the Borgue bee-keepers had resolved to stay away from the Castle Douglas Show, was determined to have their honey tested, and therefore sent to Borgue, to the first prize-taker, for one quart of his first-prize honey shown at Borgue Show. The reply sent was:—"I cannot send what was *at* the show, but will send some out of *same hive*, equally as good as that which carried off first prize, price 5*s.* per quart." The gentleman sent for it; I saw it put in jars. I also saw it staged at Castle Douglas.' I drew the attention of the hon. secretary and treasurer of that show to it, and requested them, if opportunity presented itself after the judging was past, to ask Mr. Cowan's own private opinion on that sample of honey, but neither of the two gentlemen found a convenient moment to speak to Mr. Cowan on the subject. The gentleman who exhibited the Borgue honey has still one jar, to watch its granulation. Not a few of the bee-keepers who exhibited at Castle Douglas Show thought there were no fewer than four samples of Borgue honey staged for competition there, but as they did not succeed in getting the red ticket, nothing was said about them.' These facts speak for themselves. The open classes of this show were made as a direct challenge to Borgue. Whether they were justified, by showing the 'white feather,' in not entering their own honey in their own name, I do not intend to discuss. Some of them permitted their honey to be entered in the name of other exhibitors, while they positively knew that their honey was competing. The action of at least one Borgue bee-keeper on the day of the show went a long way in proving this statement.

The foregoing remarks, I think, show clearly that Borgue honey has been fairly and honourably beaten; and, so far as I know, in every competition outside of their own village show it has been the same. Notwithstanding all this wrangling, I may here say, on good authority, that the prize-takers of the open competition, and many of the exhibitors, have signified their willingness to meet their Borgue brethren on the first opportunity, on fair and reasonable terms, in order to enable them to settle this premature claim of 'superior excellence' in Borgue honey, and which, as I have already said, is the only way to arrive at a satisfactory decision. — W. McNally, *Glenluce, December 27th.*

CARNIOLANS AND SWARMING.

[5.] In 1887 I introduced to one of my stocks a Carniolan queen which had been mated with a black drone. In the following year the queen went off with a swarm and was lost, being replaced by a daughter, who was also, I believe, mated with a black drone.

During the mother's lifetime the bees, instead of propolis, used wax mixed apparently with a very small portion of propolis; but in the daughter's time they have used a *great deal* of propolis with hardly any wax mixed with it. The hive did fairly well last year, but I cannot say much about it, as I tried my hand at queen-rearing, which led to the hive's swarming twice.

This year (1889) I determined that the bees should not swarm. On the 4th of May the bees were on ten frames about a quarter of an inch apart, and in nine of which were brood and eggs. I added two more frames of worker comb, removed the front dummy, and put about five starters in front. On the 6th I gave them a rack of twenty-one sections, and the bees were in possession next day; and a few days after I added a second rack of twenty-one sections.

On the 17th two combs with drone brood had been built on two of the starters, and another comb, nearly all drone cells, on a third starter. A good deal of the brood was sealed. I cut out these combs and other combs from time to time, taking care that the first two starters were never built out. I also removed all the quilts (except an enamelled quilt) off the starters, the weather being warm, and arranged the last-named quilt so that it only extended to the middle of the first frame (with starter), leaving the front half of it open to the hive case, which I wedged up to allow plenty of air. I also wedged down the floorboard to allow an entrance all along the front, and made an opening one-eighth of an inch all along the back.

In spite of these precautions the bees swarmed on the 23rd of June, leaving twelve brood combs and forty-two sections approaching completion, but hardly advanced since the end of May. All the comb built by these bees on the starters was drone comb, except little bits, not enough to fill a section. The starters were of worker foundation and a quarter of an inch apart, and it was curious how the bees managed to build the drone comb upon and beyond these starters, so that it hung down from the far side of the frame, or was suspended from two frames.

I took forty sections from this hive, and the bees partly filled another rack which I gave to another hive. As to capping—on one rack of lime honey the capping was most beautifully white, but after keeping it a couple of months (or less) the honey soaked into the lower halves of the cappings, spoiling its white appearance. I returned the swarm on empty combs, &c., with the supers above, and they did not swarm again.—T. F. L., *Brondesbury, December* 1889.

THE LATE MR. G. HENDERSON.

We regret that we are obliged to postpone until next week the memoir of Mr. G. Henderson, as owing to the Christmas holidays it was impossible to get an engraving made in time for its appearance in this issue.

Echoes from the Hives.

The past season has not been a very good one for London bees, the produce of the two hives to which I confine myself having been seventy-five sections and two nuclei, which I am now wintering in five and six frames. One of my hives (black) stored ten sections with honey-dew in addition to the above seventy-five, but it is the first time I have been troubled with it. The bees secured a fair amount of honey from the fruit blossom, and the limes yielded a good deal, but the clover was a failure (as it was last year), possibly owing to the increase of bricks and mortar. I am trying the nuclei under enamelled quilts, and one of them in a single-walled hive, and as yet all has gone well.—T. F. L., *Brondesbury, December 27th*, 1889.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication. All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

G. Ball.—*Commencing Bee-keeping.*—We do not recall the hive you name, but we should certainly not expect to find it was painted. The number of sections required for a hive depends upon the kind of honey season we get, and the kind of neighbourhood your bees are in. They are put on in racks made to hold twenty-one each. When the bees have nearly filled the rack of sections, it is bodily raised, and another rack of sections inserted between it and the frames. The top lot are removed a day or two after, as soon as the bees have sealed them up. Read 'Marketing Honey' in this number, it will answer your next two questions. It will pay you to study Cowan's *Guide to Bee-keeping*. Consult us again as may be necessary.

Lincolnshire Novice.—1. *Recipe for Mead.*—Take 6 gallons of water, 24 lbs. of honey—that which is the thickest and darkest is the best for the purpose—boil for half an hour, removing all scum as it rises, add 3 oz. of best hops, boil again for fifteen minutes, strain into a cooling vessel, and when lukewarm add 6 tablespoonfuls of brewer's yeast well stirred in. Allow it to work for twenty-four hours, remove the head, and put the liquor into a 5-gallon barrel on two lemons sliced. Leave the bung out, and allow it to work over, filling up as it decreases with the spare liquor. When working has ceased, bung it down tightly, and bottle in two years. Some add half a bottle of brandy when drawing it off into the cask, or at the time of bottling. 2. *Preventing Honey Fermenting.*—Your honey has absorbed moisture from the damp place it has been kept in. Your best plan, if the honey is granulated, is to pour off the liquid, then turn the bottles upside down, so as to allow every particle of liquid to drain off. If slightly warmed, and then corked, it will prevent any further fermentation. Or you can liquefy it by putting the jars in hot water, and when quite clear cork while hot. 3. *Glass Sections.*—Glass sections made and filled before September 30, 1889, if they do not infringe any one's patent, can certainly be lawfully sold.

Bees and Christmas Cards.—Bees have figured quite extensively in Christmas cards of the present season. We have received a number of them, one of the prettiest being a couple of skeps with straw hackles on them, with a background of trees, and bees at the other end of the card flying towards the hives. The motto was, 'May your joys be sweet as the honey that I bring.' Another, by H. H. & Co., is *A Christmas Wish*, and contains two skeps on a steddle, with the following verses :—

> 'The joys of years to *comb* excell
> Each pleasure that is spent;
> The *Queen* of Fortune guard you well,
> And give you all content.
> From every *sting* your life be free,
> As on this *buzzy* hive
> We *swarm*, each striving first to *bee*,
> And may you always thrive!'

(This is H. H. & Co.'s copyright.)

We have received a useful little *Honey Almanac*, published by Thomas G. Newman & Sons, of Chicago. It is well printed, compact, and full of useful recipes and information. In the thirty-two pages are compiled a large number of recipes for using honey in cooking, medicine, also in making vinegar, &c. Its distribution by bee-keepers would do much to educate the masses in the various uses of honey.

Honey by Handfuls.—There is a little yellow bee in Honduras that is very much like the little yellow flies found about corn-silks. The bees are without stings, and the most industrious little insects imaginable. They build in hollow trees and wherever they can find a lodgment, and they gather a double handful of honey of delicious flavour in these nests of rough comb. So plentiful are they that a person can take a hatchet and cut into the knot-hole in the trees and soon collect all the honey he wants without the danger of being stung by the bees.—*Glasgow Weekly Mail.*

THE

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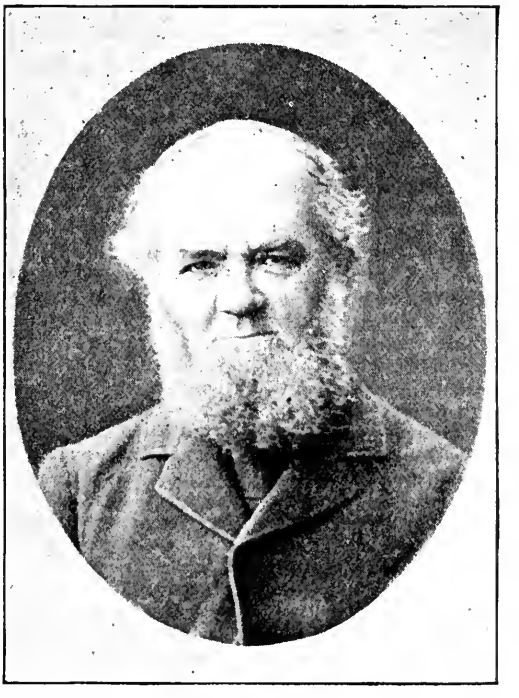
Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 19.—MR. GEORGE HENDERSON.

It is with the sincerest pain that we have to record the death of Mr. George Henderson, of Langholm, Ealing, Middlesex. Connected, as he was, with the *British Bee Journal* from its beginning in 1873, his loss comes with special sorrow to all who are distinctly identified with this publication. A still wider circle will also mourn his departure; for his official duties as sub-editor, carried on with exemplary zeal and courtesy for so many years, brought him into communication with all the most able and most practical bee-keepers of this and some other countries. His knowledge of apiculture was, as might be expected, very extensive. He was a bee-master of long experience; but he was more than this. His literary power was great. He was a student and a thinker. His mind was always open to the reception of new ideas, but his well-balanced judgment came to no hasty conclusions. He reasoned about and weighed conflicting observations and deductions, and was willing always to wait for more information and more light when apparently opposing facts or rival theories demanded explanation or acceptance. Pure in heart; swayed by no motives of self-interest; simple in feeling and candid as a child, George Henderson was a man whom none feared and none could claim as a partisan, but whom all respected and many loved.



MR. GEORGE HENDERSON.

Sprung from a family formerly settled at Langholm in Dumfriesshire—a fact signalised by the name he gave to his house at Ealing—his conversation at once revealed his connexion with Scotland. It will be a surprise, then, to many of our readers to know that Mr. Henderson was born in London, December 11, 1819, and lived in or near to the metropolis for fifty-nine out of the seventy years of his life. His Scotch accent, his intimate knowledge of Lowland Scotch — and how intimate this was will be noticed later on — his Scotch humour, and his Scotch prudence, may all be accounted for by the fact that he went to Edinburgh at six years of age, and was educated in that city at George Watson's Hospital—not a medical institution, but one of the thirteen foundation schools boasted by 'the modern Athens,' and similar to our Christ's Hospital or Bluecoat School. There he received a thorough education, and at college he took the highest classical honours, receiving in recognition thereof the silver medal awarded to the 'Dux' of the school. That he was well read in Greek and Latin authors was known to all who enjoyed his friendship, and was apparent to all who could trace his hand in the articles which he contributed to the *Bee Journal* and to many other periodicals.

At the age of sixteen he came south again, and was apprenticed to Mr. Moyes, printer, of Castle Street, Leicester Square. Owing to his proficiency as a Latin and Greek scholar, he was advanced to the post of 'reader' at the early age

of seventeen. During the whole seven years of his apprenticeship he is reported not to have been absent for a single day from his work when the office was open. Later on he determined to devote his energies chiefly to literature. This is not the place to record all the excellent work he did, but there are some incidents of his career which will certainly interest our readers.

In 1854, Messrs. Nisbet & Co. began to publish a miscellany called *Excelsior*. To this serial Mr. Henderson contributed a large number of papers on various topics throughout the whole period of its continuance. Though natural history subjects were the most congenial to him, his varied knowledge enabled him to give to the public information of other kinds from his well-stored mind. He, also, frequently wrote for *Church Bells*. He edited, for several years, *Harwood's Almanac*, and used to revise, till within a recent period, an important department of *Whitaker's Almanac*. In 1862, in compliance with the request of Prince Lucien Bonaparte—a scholar and philologist with whom Mr. Henderson was on intimate terms—he undertook the translation of the Gospel of St. Matthew into Lowland Scotch. He also rendered the Song of Solomon into the same dialect. These works, of which only 250 copies were printed, are now exceedingly scarce, but they rank him definitely in the noble army of translators of the Scriptures, and show how deep and accurate was his knowledge of the tongue of his 'forbears.'

During one year of his literary life Mr. Henderson was away from London, having undertaken work in connexion with a local paper at Southampton. In the metropolis his great interest centred, and for a long period, and up to within a few days of his death, he was to be found acting as the head of a department at Messrs. Strangeways', where this *Journal* is printed. How devoted he was to his work only those fully know who were in constant communication with him. Though he was financially in a position to retire from business, and though his friends, and, it is believed, his medical adviser, urged him to give himself relaxation from his long-continued labour, his heart was so fully in his daily round of duties that he would not —perhaps *could* not—tear himself from them. Happily he had a splendid constitution, and for fifty-five years was never obliged to spend one day in bed. Such, too, were his nerve and self-contained courage, that after his doctor had told him that he had a serious malady, he carefully concealed the fact from his wife and family through the last nine months of his life, till within a very short time of his death.

To the qualities we have already ascribed to him, Mr. Henderson added, as might be expected, the strictest integrity and straightforwardness. With him the first question on any matter was, 'Is it right or is it wrong?' and nothing between would do—no plea of expediency or trimming to circumstances would suffice for him. He was, moreover, a God-fearing man and a faithful Christian worker. Not content with the six days of steady occupation in London every week, he was, for very many years, the earnest and efficient superintendent of a Sunday school, and his memory is held in highest respect and affection by his coadjutors in that institution. From it he had retired only within a very few months, and owing to the increase of a malady which was telling seriously, as he alone fully knew, upon his physical strength.

Mr. Henderson was a member of the B.B.K.A., and served on the Committee of the Middlesex B.K.A. From time to time he read papers before the Ealing Microscopical and Natural History Society. One on 'Wasps' and another on 'Honey-dew' have been published among the *Transactions* of the Society, and are full of interest.

His last illness detained him from his office in London only for a single week before his departure, which took place at 3.30 a.m. on Saturday, the 21st ult. Of him it can truly be said, 'The end of this man was peace.' A widow, six sons, and two daughters, mourn the loss of one who was as exemplary in his family life as he was in all the other relations he sustained.

A RETROSPECT.

In reviewing the various incidents of the past year we cannot avoid becoming at the outset painfully conscious of the depressing surroundings of our craft when '89 made his bow to the world. The year that had gone will long be remembered as the year without a summer, and as the most disastrous ever recorded as regards its effects on bees. Many of the losses experienced in the spring of '89 were the inevitable outcome of the unseasonable weather of '88. But bee-keepers in general, and the B.B.K.A. in particular, are not easily discouraged. The parent Association, therefore, took early steps to ensure the success of the show held at Windsor in connexion with the Royal Agricultural Society, the result being that the exhibition of bees, honey, and appliances may, as a whole, be quoted as the most complete and interesting that has ever been got together. Numerically it was the largest as regards entries. Beautiful surroundings, excellent weather, coupled with a more than usual personal interest by Her Majesty, drew many thousands to the show. The Queen, with her well-known critical interest in any occupation that is beneficial to her people, made a special visit to our portion of the show, being received by the Baroness Burdett-Coutts and some of the members of the Committee of the B.B.K.A., and showed great interest in the explanations given by the Chairman; Her Majesty also accepted some samples of honey, and at the same time expressed the great pleasure derived from her visit.

Owing to the recasting of the freight rates by the various railway companies, the B.B.K.A. have endeavoured to assist in bringing such pressure to bear as will, if successful, give considerable relief, primarily to our industry, and incidentally to other industries also. The matter

of railway rates is one of vital importance to the general well-being of the country, and doubtless any undue harshness on the part of the railway companies will tend to hasten on the time when such monopolies will cease to exist.

At the annual meeting of the B.B.K.A. on February 21st, 1889, several alterations of considerable importance were made in their rules. Although tacitly understood, it had never before been officially laid down that manufacturers and dealers were ineligible to serve on the Committee; but after considerable discussion an overwhelming majority excluded them from the Committee for the future, and, on the other hand, conferred eligibility on all the five-shilling subscribers. This should enable any vacant seats on the Committee to be more easily filled up. Many who would be very acceptable on the Committee are debarred by the expense and heavy loss of time involved. Hitherto county representatives had held a somewhat undefinable position, and the meeting, after hearing arguments on both sides, decided to give county representatives who were members of B.B.K.A. an *ex-officio* seat on the Committee. By the presence of county representatives at the regular meetings of the Central Committee the Counties have been brought into touch with the Parent Society, and must thus lead to a considerable increase of activity and usefulness.

Power was given to the B.B.K.A. to recognise 'District' Associations in addition to 'County' Associations, as it was considered advisable to foster a small aggregation of bee-keepers in the hope that in course of time a County Association would thus develop where at present no Association exists.

The rules for the examinations of would-be experts have undergone considerable modification, with a view to obtaining a more accurate knowledge of a candidate's abilities.

In July a capital exhibition of bees and appliances, under the immediate *ægis* of the B.B.K.A., was held at Horsham, in connexion with the Royal Counties' Agricultural Society. Owing to the improvement of the weather most excellent honey was shown. An excellent exhibition, organized by Mr. Carmichael, and which lasted two months, was held at Melrose. It was well attended and good results may be expected.

In literature we may point to the large circulation *Modern Bee-keeping*, issued under the auspices of the British Bee-keepers' Association, has attained. A new edition, bringing the work up to the present time, consisting of 10,000 copies, is about to be issued. The *Bee-keepers' Guide-book* has also met with much success during the year; a new edition, the tenth, almost entirely re-written, has been issued, bringing up the number to 19,000. A pamphlet on *Wax, and its Conversion into Money*, translated from M. Dennler, will also be of service to bee-keepers. Messrs. Dadant's revised edition of Langstroth's great work, *The Hive and Honey Bee*, is an event of considerable interest to bee-keepers. Were it not already a work possessing a world-wide reputation, as derived from its venerable author, then the very get-up and general excellence of the latest edition would recommend it to the ordinary reader, the student, and the cultured scientist. There is also Woollittle's *Queen-rearing*, a work of considerable interest to the practical bee-keeper.

The honey crop of '89 may, as a whole, be considered fairly good in this country, but the general crop the world over would appear to be below the average. This low average is further accentuated owing to the reduction in the number of colonies by the inclement weather of '88. In many districts the honey flow was restricted to a very short period, and only such stocks as were quite ready had any chance of benefiting by it. Foul-brood would appear to be less prevalent. Would that we could say it was extinct! No very striking innovations have made their appearance during the year, and judging from general rumour we should say it was a decidedly bad year for manufacturers and dealers.

We cannot close without recording our deep sense of the loss sustained by the deaths of the Rev. G. Raynor and 'our' Mr. G. Henderson.

THE WEATHER OF THE PAST YEAR.

The season of 1889 has, taken as a whole, been much more prosperous than that of 1888. Swarms have been much more numerous, and, as a rule, they were of good working strength. Owing to the very heavy losses experienced in 1888, a swarming year was more to be desired than a honey year, in order that such losses might be made good. Briefly the following is an epitome of the general characteristics of the weather of the past year:—January opened cold, then we suddenly experienced a sudden rise in the temperature, being very mild, damp weather, the bees getting their first flight during six weeks on the 19th. During the latter half of the month we had hardly any sun. February commenced with boisterous, fitful storms of rain, hail, and snow, while the latter half of the month was much milder. As much as 17° of frost was experienced early in March, succeeded by heavy floods over a large extent of country, which were followed by snow-showers, wind-storms, and a recurrence of frosty nights towards the end of the month, in conjunction with which we had but little sun by day. The early part of April was marked by cold winds, frosty nights, weather of a stormy character, and but very little sun; while the second fortnight gave us a succession of snow-storms, heavy rains, and floods, with a considerable improvement during the last few days, which set the bees to work in earnest. May opened with excellent weather in the daytime, but rather too low a temperature at night to encourage the requisite expansion of the brood-nest. Any negligence then in the way of warm coverings spoilt the honey harvest for many. Generally wet weather, frequently varied by swamping downpours, characterised the closing half of the month, which ended dull and damp. We had right splendid weather for a day or two

in June, especially Sunday, the 2nd of June, which may well be named 'Swarm Sunday.' On the 6th and 7th severe thunderstorms, accompanied by lightning of an extraordinary character, were generally experienced throughout the country. Much damage was done. The inevitable chill followed, causing the thermometer to register as low as 38° on one or two nights. The 15th, 16th, and 17th were excellent, and generally the weather was favourable until July was well commenced, when the secretion of honey began seriously to decrease owing to the continued dry weather. Rain fell copiously on the 13th; the rest of the month gave a record of uniformly low temperature, 44° being touched. A week's good weather favoured us in August, followed by one of heavy rains, high winds, and low temperature, the last two weeks being cold and wet, with no chance of honey being gathered. September was probably as favourable as could be wished for, closing up the season; bees were very active on the wing, and those who seized the opportunity had no difficulty in getting their stocks fed up to a safe weight for wintering. October and November were generally of an open character, with rather a higher temperature than could be expected. Many plants, such as scarlet-runners, dahlias, and geraniums continued fresh and green, with occasional blossoms, far beyond their usual period. Early in December sharp frost was experienced for several days, making skating general even south of London, but the frost suddenly disappeared, and very mild weather has been the rule since. Although the early part of the season was decidedly not of the most advantageous character, and bearing in mind that many bees must have been caught by the heavy storms of rain while foraging, yet where stocks had been well provisioned the rate of increase was rapid and excellent swarms were thrown off. The considerable proportion of mild weather that we have had since September will have entailed a heavy consumption of stores.

EXTRACTING—WHEN TO BEGIN AND WHEN TO STOP.

If a beginner in bee-keeping should ask me the above question I should be strongly tempted to answer, 'Never begin at all and stop right there.' I would not say this, because I am not one of those who say uncompromisingly 'the extractor must go.' I believe the extractor has its place, and it is an important one. I should be tempted to say it because it seems to me that many bee-keepers are producing extracted honey at a loss not only to themselves but to others; perhaps more especially to the others. But there are many situations where the production of extracted honey will be found more profitable than that of comb, and the proper combination of the two systems will give better results than either alone. However, this is not the place to discuss this question. We will suppose that you have decided to produce extracted honey.

The proper time to begin extracting is when all the crop has been stored in the hives, and the hurry and worry of the honey flow are over.

To begin with, your hives should be capable of being tiered up to any desired height. A hive that will not admit of this is not suited to the profitable production of honey, and is especially unsuited for extracting. When honey begins to come in, put on a set of empty combs. As soon as this becomes nearly full, raise it up and put another set on between it and the brood-chamber. Continue this as long as any honey comes in.

At the end of the honey flow you have your honey piled up on the hives, and can extract it at your leisure. By giving an abundance of room at all times there is no interruption of the labours of the hive, and no honey is lost for want of a place to store it. Swarming is very largely, if not entirely, prevented. You are not hurried to take care of the honey during the busy hours of the honey flow, and can thus care for more bees if you choose. Last, but by no means least, your honey is ripened and is the best possible quality. It is true that this method of producing honey, which was made public by the Dadants, requires a larger stock of hives and combs than when the honey is extracted whenever the bee-keeper thinks it is fit—which is generally too soon; but these will pay a large interest on their cost, and will be found cheap in the end.

With me the time to stop extracting is when I have all the surplus combs emptied of honey.

It should never be found necessary to extract from the brood-chamber, and if this is not too small I generally find enough honey for winter stores.—James A. Green, *Dayton, Ill.—Apiculturist.*

FUMIGATING HONEY.

Dr. Miller Tells When and How to Fumigate with Brimstone.

So much has been said lately about brimstoning honey, and the plans in general are so troublesome, I am now tempted to give my way, although I have given it before. It is a very simple matter. Just get some powdered sulphur, light a match and set fire to it, and that's all there is of it. No dipping rags in sulphur, nor any preparation whatever. Within two minutes after the sulphur is brought from the store I can have it slowly blazing away, needing no further attention till the last atom is consumed. Although there is scarcely any trouble about this, I take some pains to avoid any danger from fire. Let me give you the minutiæ of my last experience, which does not materially differ from that of several years. We were getting our crop of honey ready for shipment; and trusting somewhat to what I had read of the experience of others, I had said, 'This honey has all been taken off so properly, is so white and nice, and

there is not one section in a thousand with a cell of pollen, that I don't believe there is any need of smoking it.' But after scraping a good many sections we began to find here and there the tell-tale bits of powder that showed the little worms were at work there, even though we could not see them with the naked eye. So we concluded the remainder must be smoked before any more were packed in cases.

I said to my wife and Emma, 'Now, don't let me ever again omit fumigating. Those who say there is no need of it have different bees, or something different from mine, and it is just possible that, if they watched the matter closely enough, they would find some of their sections are wormy before they reach the table of the consumer.'

So I got a pound of powdered sulphur. The roll brimstone is cheaper, but a great deal more troublesome to burn. The sequel showed that a pound was not enough for so large a room; and, to tell the truth, I don't know what is the right amount. If too much is used, some of the sections are made green; and even with too small an amount used, a few sections were slightly greened. It must make some difference as to the amount of honey in the room. Suppose you have a room measuring ten feet each way, and you find just the right amount to sulphur a single section, will it not require a less amount when you fill the room just as full as you can with sections? When the room is about empty, if it contains 1000 cubic feet of air it may be filled so full of honey that it shall contain less than half the air; and are you not to gauge the needed amount of sulphurous vapour by the volume of air to be saturated? If the honey is smoked within ten days or two weeks after leaving the hives, much less sulphur will answer than a month later. After the worms have attained full size it seems almost impossible to affect them with any amount of sulphur.

But to return. I have an old kettle, worthless for ordinary purposes, which is placed on a dripping-pan turned upside down. The kettle has a capacity of perhaps sixteen quarts, and is filled a quarter to a third full of ashes. On these ashes stands another kettle of much smaller dimensions. In this latter I put the pound of sulphur. Making a kind of little dish in the top of the pile, I stuck in it a lighted match, and at once there was a little melted puddle on which a blue flame was playing. I covered over the whole affair with a worn-out milk-pan, both for greater security against fire and so that it would burn more slowly. It was placed near a window, so that I could look in and see what was going on. The sulphur was lighted at about six in the evening. At ten p.m. a line of blue could be seen burning away under the edge of the milk-pan. I then went to sleep and did not look at it again till twelve, when it had burned out. Next morning doors and windows were opened some time before the room was aired out fit to breathe in.—C. C. MILLER, *Marengo, Ill.*—*Gleanings.*

BEE-KEEPING AS AN OCCUPATION FOR WOMEN.

The question may be, and no doubt often has been asked, 'Is bee-keeping a suitable or desirable occupation for women?' and after having given it a pretty fair trial for the last eight years, I am of the opinion that there is no reason why any woman of moderate strength and intelligence should not be able to take charge of an apiary of from thirty to fifty colonies with very little assistance, and derive both pleasure and profit from the employment. At the same time I doubt whether there are many who would succeed very well in carrying on the business alone, though of course there are a few who would.

In reading the numerous bee-papers that are published nowadays, one frequently meets with articles on the subject of whether it is best to make a speciality of bee-keeping, or combine it with some other occupation. Now, I do not believe that the farmer can carry on both farming and bee-keeping successfully himself, but if he has either daughters or sons who will make a speciality of this department, bee-keeping, it may very advantageously be combined with farming: and I do not know of any reason why girls might not make as great a success of the business as boys.

The wife is supposed to have her hands quite full enough with household work, and, I may say, her head too; and for any one, either boy or girl, man or woman, to do any good with bees, they must give them their individual attention, and be really interested and enthusiastic over their work.

'Eternal vigilance is the price of success' in any business, and in none more than in bee-keeping. It is not only labour, but a science, and will make constant demands not only on the patience, but on the bodily strength and intelligence of those who engage in it: at the same time there is a fascination about the business which relieves it of all tediousness. A woman will think of her bees, study about them, and become so interested as to be almost paid for her work by the love of it.

I believe it would be well worth while for any one who has not been in the way of having the management of an apiary to spend one season with a skilful bee-keeper before embarking in the business on his own account, as he would then find out not only the best methods of working, but also whether the kind of work suited him. However, even with this preparation, all will not succeed, for I know a lady who took this course, and afterwards failed entirely when she was working for herself; while others who have only learned what they could from books and papers, besides the suggestions and instructions given them by more experienced bee-keeping friends, have done very well.

In conclusion, I may say that a great deal of the work in the apiary is quite as well adapted

for women as for men, and also in the care of the honey and in preparing it for market.

Where they are more likely to feel their deficiency is in the lack of skill to do the various carpentering jobs that seem to be inseparably connected with bee-keeping. I imagine that it is the exception rather than the rule to find a woman who knows how to handle carpenters' tools, though even this they may acquire enough of to answer the purpose where there is a necessity for so doing.—HENRIETTA F. BULLER. —*A. B. J.*

GENTLE BEES, BETTER WORKERS, AND SMALLER CONSUMERS.

Which will make the better working colonies during the working season—that is, secure the most honey—those that require twenty to twenty-five pounds to carry them through, or those that will get along on from five to ten pounds while in winter quarters?

This question has set me to looking back for several years, and thinking up concerning various strains that I have had for the past thirteen years. That there is so much difference in different strains concerning the amount of stores consumed between November 1 and April 1, I can trace back to 1876, on a queen that came from C. C. Vaughn, whose stock was always strong, as were also those of her daughters and grand-daughters. From the time of the end of the fall harvest to the time of pollen and honey in the spring it was a rare case to see the workers fly out much: and for seven or eight years that I kept this strain as near pure as possible it was very noticeable what a small amount of stores was consumed, and it was also noticeable to the same extent where this blood was intermingled with some other strains.

Between 1876 and 1882 I obtained new queens from fifteen different strains, and among them were several that were noticeable for their extreme activity, as were those referred to from C. C. Vaughn, and two other places, for their extreme quietness. Those that were so active consumed *pro rata* as much more stores as the quiet ones did in minima. These quiet strains always came out strong in the spring, were always in readiness for the harvest, were gentle to handle, were good to go to work in the boxes, and did a good business at boxing; and just the reverse were the results from those that were active, and consumed a large amount of stores from November 1 till April 1. These various differences were noticed by other parties in this locality for twelve or fifteen miles in all directions, and by those wintering in the cellar, in clamps, or on the summer stands; and as those that were quiet built up strong and fast in the spring, just as noticeable was the spring dwindling of those that had been active, and the active ones were, in the same proportion, irritable and prone to sting. These qualities were so apparent that several bee-keepers I know of made it a point to keep weeding out the active propensities as fast as possible. The active ones were more inclined to swarm, and were quite often very much given to not freely taking a new queen, and to very often ball their queens whenever the stocks were examined. The workers of these active stocks were generally among the brightest-coloured of the apiary, and the quietest were among the dull and darker-coloured ones, and were quite often called, by those that were not experienced, the 'hybrids.'

These quiet ones, when started to breeding in the spring, usually consumed stores enough to make up for their lack when in winter quarters, and not uncommonly surpassed the amount used by the active strains; so you see that the experiences of the past thirteen years here in Connecticut are in accord with Mr. Doolittle's—and why should they not be?—because bees at several of the apiaries contained blood of his strain, and from the Dadants', too, and from stock from imported queens from A. I. Root, and from queens from the Oatmans, Alley, and Nellis. That there is a vast difference in regard to the uneasiness, activity, and amount of stores consumed, seem to be qualities possessed by various strains or families of bees; and that these propensities are perpetuable characteristics are things that I am not the only one who is convinced that we must guard against. There are apiarists within a few miles of me who think as much of keeping a record and pedigree of their bees as any Jersey, Durham, Devon, or Holstein breeder does of his cows; and by these memoranda for from ten to twenty years they have arrived at the conclusion that blood will tell in the bees as much as anywhere else in the animate kingdom: and yet one will preach out, 'It's pollen:' another will preach, 'It's poor honey;' another, that it's the weather. Why, I know where there is a bee-keeper—yes, several of them—who will tell you, and prove it by practice, that it is an absolute necessity for the bees to have lots of pollen that they may winter well, and they have followed the practice ever since 1877, and they don't lose their bees either. I practised it in one apiary myself ever since 1877, and it is the apiary where I always have the strongest colonies, the first drones, and raise the earliest queens, and lose the fewest colonies in winter or spring, and yet they have all the pollen that I can give them. I think this question will set many to looking for some of their winter losses among these very active and naturally uneasy colonies, and find not a few of their most unprofitable ones among the same class. I have found it so, and so have some other bee-keepers. Just look around you; keep watch, and see if I have not told you a grain of truth this time.

One thing more. While I was looking over the bees in the Grove Street apiary in New Milford last week, one of those pleasant days (the thermometer told 60° in the shade), it was very plain to be seen that those stocks having used the least amount of stores were in the best condition, were the strongest, had the fewest dead bees on the bottom board, and, besides that, could be traced by the register for the

past four seasons to stocks possessing those qualities, and just the same could those of the active and weak stocks be traced out in their qualities.—H. L. JEFFREY.—*Gleanings.*

BEE-STINGS A POSITIVE CURE FOR INFLAMMATORY RHEUMATISM.

I have read about bee-stings as a remedy for rheumatism: and as there are some that claim it cures them, and some that it does not, I thought perhaps my case might interest you a little. I have suffered with the worst kind of what I call inflammatory rheumatism at different times for over fifteen years. Sometimes it would be two months when I could scarcely turn over in bed, and could not even bear the bed-clothes to touch the limb that was bad. My knees and ankles and feet were the most affected. It would commence in one joint, and get so bad that the joint would swell terribly; then all in a second it would ease off, and in about an hour the pain was all gone; then in perhaps another hour it had settled into another joint, and it was as bad as the first one. It would sometimes move three or four times before it had run its course, then I would gradually improve. Some years I would have only one or two spells, and some years I would have three or four, and it was mostly when I caught cold.

About four years ago I commenced to keep some bees, and, of course, I got the allotted number of stings, and now I have been three years without any rheumatism worth speaking about. I have had a slight aching this last rainy weather, but not worth noticing. My opinion is that stings will cure some kinds of rheumatism: but I am satisfied that there are more than one kind, and perhaps it will not affect some kinds. Of course, I cannot be positive that the stings made the cure. It might be the honey I ate, and that is lots, as I am fond of it. Then, again, it might be the change of climate, as I moved from Chicago to this place; but I don't think it is the change, as I have had some of my worst spells since I moved here. If I should have any more bad spells I will give the bees a good chance to annihilate it, and if they do I will let you know.—JOHN HAMMOND, *Buena Vista, Ohio.—Gleanings.*

ZOOLOGY.

THE ENEMIES OF BEES.

(Translated from the *République Française* by C. L. NEAVE.)

Of the worst enemies of bees, the only kind that are really dangerous—in France, at least—are the lepidoptera of two species, the one large and the other very small, both of which are commonly known as the wax-moth. Réaumur by this word distinguishes the higher groups of the Lepidoptera, the worm of which is enclosed in a portable sheath. The larger is more usually found in the latitude of Paris than the other, which is more common in the southern portions of this country. It is this which the peasant bee-keepers call the butterfly. Its powerful jaws enable it to extend its ravages in the hives. The full-grown female is fifteen millimetres (about 3-5ths of an inch) in length, and the wings when spread out measure 50 millimetres across. Neither of the two species are found at a greater altitude than 4000 feet, and the hives situated on the high plateaux to obtain the exquisite honey of the Alpine flora have no cause to dread their attacks.

The upper wings of both kinds are of a cloudy greyish colour, but the other wings are brighter, and are covered by them when in a state of repose. They fly little, though they can easily do so: but run and jump with great agility. Their scales are shining, and the surface being slippery allows the moth to pass through very narrow interstices. There are at least two generations in the year, copulating immediately after being hatched, entering the hive and insinuating themselves among the combs with great rapidity, and escaping death by stings by their scaly armour. They lay their egg in flowers, and the bees visiting them get the egg entangled in their hair or roll them up with the pollen, thus carrying them into the hives.

The worm has sixteen legs and moves quickly by rapid undulations. As soon as it is hatched it forces its way into the combs, devouring the wax.

It bores long, interlaced, irregular galleries, formed of grains of wax and granular excrement, held together by silken threads. Their presence is discovered by black ejections similar to grains of gunpowder being found on the floor of the hive mingled with numerous particles of wax.

When a large number have accumulated in the combs they generate considerable heat, for their respiratory combustion (*combustion respiratoire*) is very brisk: a food so highly hydrocarbonated as wax, and the friction of their continual movements, contributing to this. M. Maurice Girard having reared a number of the worms of the larger species in flower-pots, and fed them freely with fragments of comb and wax scrapings, found the heat produced to be so great that it could be strongly felt by holding the pot between the hands, and a thermometer placed in the middle of its voracious population rose several times to more than twenty-five degrees Centigrade above the temperature of the surrounding air.

These worms do not touch honey, but bore and mine the combs so effectually that they completely destroy their solidity, causing them to break, and fall one upon the other, the honey, pollen, and brood being mixed pell-mell on the floor of the hive, leading to the total destruction of the stock. The worms turn to chrysalises in the hive, enclosed in cocoons of white silk, and form an agglomeration resembling a honey-comb in shape. The smaller species is not near so injurious as the other, as it confines itself to a portion of the comb and does not usually ravage

the whole hive. The worms of both species, as well as the more backward chrysalides, remain torpid during the winter, until the warmth of spring allows them to resume their mischievous activity. Weak stocks, with decrepit queens, produce little brood, and suffer especially from the ravages of these pests: the worker bees of populous hives kill the worms as they appear. If a swarm of bees is put into a hive of empty combs infested with the wax-moth, the bees are often seen actively and vigorously expelling the destroyers. The best remedy, therefore, is to remove the affected combs and strengthen the stock by uniting. If the evil has gone too far it is best to transfer the remaining bees to a fresh hive. The moth may be looked for by night and crushed, or lighted candles may be placed in plates of water coverd with oil: thee moths being attracted by the light burn their wings, and falling into the oil have their stigmates stopped, and are thus suffocated; but these remedies are not very efficacious.

DEVELOPMENT IN THE HONEY BEE.

By R. A. H. Grimshaw.

(*Continued from page* 508.)

The home of the nectar-feeding bee of that age was in the gloom of a forest growth so dense that few of the sun's rays, like bars of silver, ever succeeded in penetrating the umbrageous covering of thick, leathery foliage above which stretched for miles, perhaps hundreds of miles, prairie-like sheets of the gayest-coloured flowers imaginable, revelling in the sunshine whose fierceness was tempered by the imperceptible vapour rising from the swampy ground below. Rope-like lianes stretched from tree to tree, clinging to them with parasitic clutch for support, whilst their leaves ran up to the life-giving light above, or absorbed, like vampires, nutriment from the very veins of their more fortunate cohabitants. So all vegetation engaged in a race for light and air in which their reproductive organs would develop, thus enabling them to carry on their kind. Ferns and palms of immense size drooped their leaves, and formed of them supports on which to lean and continue their summit-growth. Banyans spread themselves so far from the parent stem after reaching light that, for support and root moisture, seeking-roots were pushed out from the branches until these became so numerous and thick that it would be difficult to say where the true stem was, or what were the crutch-like stems. Man-like animals (or animal-like men) moved about amongst the matted branches along well-frequented paths with as much facility as they could do on terra firma to-day. The insects fed on the many parts of the plants, and came down into the shade for protection, and also for reproduction. Hosts of dazzling-coloured birds flew over and amongst the flowers for insect and other food, alighting for rest, nest-building, and safety in the dark recesses of the forest densities. The quasi-higher animals, in their turn, hunted amongst all for food and sustenance; fish, fruit, insects, birds, and those other animals in the same rank as their own, yielded them support in that age as to-day.

We will neither affirm nor deny that the honey bee descended from a single pair, but suppose that at this time there were myriads of our ancestral bees in this sub-tropical home of flowers. We shall not be blamed for presuming these bees were perfect according to their surrounding conditions. Life was one long summer: there was no necessity for building honey-comb for surplus store, therefore the wax-secreting organs were not the highly developed structures we know them. Food was always plentiful, all were well-developed male and female insects, each could gather its own food and take its perfect part in the programme of peopling the earth with its kind. Then all were reproducers and food-gatherers, as we find the early generations of many kinds of bees at this day. Had only one female egg, and one active drone, out of many thousands, been selected in that age, as it is in this, for carrying on the species, the thousands of insect enemies then living would soon have given the bee its niche in the mausoleum of the 'non-survival of the unfittest;' it would soon have been exterminated, as many other beings were. Self-preservation being the first law of nature, more perhaps then than now, the instinctive building of cells *round the eggs* laid by the female, *as is done to-day amongst the humble bees*, gives the succeeding impulse—the necessary guarding of the cell against enemies, the enraged use of the ovipositor as a sting. Success follows these efforts at self-protection, and the colonising feeling follows as a matter of course.

Wax not being then as plentiful as now, there was nothing to prevent an admixture of mud, and anything that could be found of an adhesive nature, being used in making the egg-shaped brood cell as the young larva grew. There is nothing strange in supposing a cell of circular or oval form as the home of a similarly shaped grub, for in the present day there are Trigonas and Meliponas—bees very much like our own—which use both hexagonal and ovate cells in the same nest, the one for brood and the other for stores, to say nothing of the British humble bee, which uses only such a cell as we suppose our primitive honey bee devised. The queen humble bee has some of the crudest notions on the subject of egg-laying; her instinct, as soon as she finds a few lady helps about, directs her to lay eggs in masses anywhere; and as the young hatch and grow, so the attendants build between them divisions which ultimately are enlarged into the nest as we know it. So with our bee, single cells become a congeries, and this enforced socialism brings together numbers of the hatched brood. This very gathering together breeds a new danger, like new laws making new crimes, for there is the greatest temptation to plunder offered to their all too numerous foes—in fact, *new* foes spring up (able to attack a nest offering some considerable return for their trouble) which

would not concern themselves with the nests of solitary bees. How often it happens that steps for mutual defence and help suggest marauding! the ant-hill to the ant-eater, the bee's-nest to the bear. So bees which have, by design or accident, made a nest in the furrows of some forest tree or in the pith-hollow of some broken branch, found it far easier work to defend their home with these advantageous surroundings amidst so many enemies: their neighbours were destroyed by long-horned beetles, by tree-toads and land-crabs, which ran about the dense matting of branches, seeking for themselves rest-holes and breeding-places—finding food, too, in their rambles amongst the solitary and defenceless animals abounding.

Such bees as had found a tree-home must appear, even to the most sceptical, more fit to carry on their race than those which had not been so fortunate or clever; such bees only were *allowed* by their enemies to carry on their species, for they alone survived. By this process in nature those animals—those bees—which build brood nests hidden away, hand on to their progeny instincts inherited and increased in intensity; the social instinct grows apace, we picture them densely packing a tree-hole with cells without any apparently orderly arrangement, defending the entrance to the nest against attack from those smaller animals able to enter their home —all queens and drones, or rather all perfect females and males, living for the one purpose of advancement in the life-struggle by the strained use of such intelligence as they were endowed with, handing down to their descendants a greater facility of using what we are pleased to call their inherited instinct, taking instinct to mean an intense unreasoning impulse. There can be little doubt that in that age insect enemies were most numerous, and that it was necessary, in their semi-unprotected state, to increase and multiply at a very rapid rate in order to keep pace with, and ahead of, their destruction; hence all were reproductive, living in commonwealths. All were perfect, *i.e.*, perfect in being able to gather sustenance for themselves, and take their full part in the reproduction of the race. Higher perfection, erroneously so called by us, only comes into play by the divisions of labour necessitating specialisation of parts. These parts become more highly developed, but with this there is a corresponding atrophy, a degeneracy of those parts which are falling into disuse, for you cannot obtain increase of one part without extra expenditure, and this in itself is detrimental to some other part.

Let us try, in imagination, to shadow out the development of the worker from the queen. Cells, in a given nest, must, in course of time, get less and less, by reason of the cast skins of the brood. Bees hatching in these do not have full play for that extra abdominal growth noticeable even in an unfertilised queen. If we let this constriction be ever so slight, it is, without doubt, one of nature's checks on the reproductive impulse. In course of time such queens would partially lose the repeopling instinct in the same measure that the more perfect queens would find it stronger in them now that food was brought in plenty to the home and guarded from theft—now that they have little or no need to leave the nest to seek it for themselves. In the more perfect queen we should observe the devolution of the reproductive instinct with the corresponding atrophy of those parts required for nectar, and pollen-gathering and wax-secreting, whilst in the less perfect insect we should find the contrary. We should thus get a race of stay-at-home nurses and cell-builders, who *could* reproduce the species in a minor degree, and could also gather food, &c., in a major degree. We have our workers acting as nurses before leaving the hive, as food and honey-getters, as a substantial proof at this day that they have passed through this stage at some period; we have, besides, the fertile worker as proof that workers have at some time been egg-layers. Stay-at-home bees would be frequently called upon to use the almost barbless sting in defence of the nest, and thus would the wonderful mechanism of the sting and sentinel instinct grow into higher perfection by their more frequent use. The fat secreted by the quasi-worker (used by the queen in egg-production) would be deposited in the least-used part of its structure (the front of the abdomen) in increased quantity, and would percolate the thin film-like glands there found, these glands finally appearing on their exterior surface as we find them in their present highly perfected condition.

All these structural modifications are not brought about suddenly as by a fiat; such things are not done to-day by spasms, in the twinkling of an eye: all is slowly proceeding now as in the days we spoke of, silently, regularly, and with the precision of the drops falling from a stalactite in some cave, holding in solution a definite amount of mineral matter, which shall go to form the noiselessly, steadily growing stalagmite. The limestone floor shall relentlessly, in time, entomb writings in nature's scriptures with sure and pitiless accuracy as to the happening of many things in that age. Thus, with the bee, the existence in it of wondrously admirable instincts, of almost unique structural changes, go to prove that these have slowly grown to their present perfection in long ages from some remote ancestor not so well endowed, for along with the highest development of some parts we find a shocking abortion of others, both this degradation and perfection pointing to a common progenitor possessing a general average of all. Drones and queens *have* at some time gathered food for themselves, and also for their progeny, supposing that then as now such progeny could not possibly find for itself. Drones and queens, through steady disuse, have allowed parts to degenerate, and finally nearly disappear, whilst some of the progeny have gradually modified their parts, or, rather, they have been gradually adapted to their surroundings.

(*To be continued.*)

GLEANINGS.

In the *Bee-keeper's Advance*, B. Walker, in speaking about wintering, advocates a wide entrance to the outside box, taking care that this is not deep enough to admit mice: an entrance protector made of two right-angled triangular pieces of inch board and a piece of thin board as wide as the longest side of these blocks and a little longer than the entrance to the outside box. This stands on a projection of the bottom board during stormy weather, and also serves a good purpose as an alighting-board when needed. High, close wind-breaks on the north, east, and west sides of the winter quarters, that on the north side being much longer than the others. This serves not only as a protection from winds, but helps also in raising the temperature at times favourable for giving the bees a flight. Hives, of course, are supposed to face the south, when by raising the covers and giving the hives a pitch to the front this object is facilitated, shading the hives during winter and spring, when otherwise the bees will be likely to fly, when cold winds or light snows render this undesirable. More than one inch space beneath frames is not desirable, and is likely to hinder building up colonies in the spring. The top packing should be so arranged as to allow of a free circulation of air above it, and also so as to be quickly handled in a body to aid a rapid examination.

In the *Bee-keeper's Review*, J. H. Larrabee writes of successful wintering out of doors in Vermont, and advocates chaff-packed hives. With regard to increased consumption of food in out-door wintering, he says:—

'The increased consumption of stores in out-door wintering is, I am quite sure, not as apparent at the opening of clover bloom as on the 1st of April: as honey is, I contend, consumed in much larger quantities at this season by colonies wintered in the cellar than by those wintered in the open air.'

Last winter he wintered ninety-six colonies out of doors in chaff. On the 1st of April all were alive; one was queenless, and one dwindled during April as a result of late 'tinkering.'

In *Gleanings*, G. M. Doolittle speaks of cutting open queen cells to see when they will hatch, having found in separating queen cells, when they were near together, that they became torn, so that the bees would drag out and destroy the inmates, and therefore he tried the effect of a protector. He soon found out that a queen would hatch out just as perfectly from a cell having one side gone, if it was put in a cell protector, as from a perfect cell. After finding this out it occurred to him that if he did not know when a queen was going to hatch out from a given cell, all he had to do was to open the cell at the side near the base, look at the immature queen, and put the cell back again in the protector. Strange to say, he even relates turning the queen out on his hand, and looking her all over and replacing her. When care was used, he says he has never known one to fail hatching. All very good for Mr. Doolittle, but we advise our readers not to follow his example until they attain *to* his experience.

In the *American Bee Journal* we find the following two recipes:—

Hoarseness.—Wrap a large lemon in a piece of wet, raw cotton, cover with hot ashes, and roast: when done, squeeze out the juice and mix with honey. Dose, one tablespoonful every hour.

Chilblains.—Make an ointment of tincture of catechu, 2 fluid ounces; honey, 1½ ounces; water, 7 ounces. Mix well and apply at night.

Foreign.

BEE-KEEPING IN JAMAICA.

The 'Jamaica Bee-keepers' Association' has been formed, with its headquarters at Kingston. The primary objects of the Society are to be the extension and improvement of the bee-keeping industry in the island, and, we may add, the increased production of fruit also, for where there are no bees to fertilise the flowers, there can be no fruit, but, on the contrary, where bees are numerous, the supply of fruit naturally increases in the districts inhabited by the busy bee. Those, therefore, who desire to save a sweet product, as well as to increase their fruit supply for local use and shipment, we advise to communicate with the Secretary of the Jamaica Bee-keepers' Association, Kingston P.O., to find out the 'reason why' from men who have made modern bee-keeping a special study. We understand that there is to be a special building at the forthcoming Exhibition to show the best description of bees lately introduced into Jamaica, and all the modern appliances used to control, help, and finally rob the dear little creatures of their hard-earned stores.

AMERICA.

The International American Bee Association held its Twentieth Annual Convention on December 4th, 5th, and 6th, 1889, at Brantford, in Canada. It will be remembered that this Association changed its name from the American, and its rules were in a great measure altered. The present Convention seems to us hardly like an international, or even like the old American one, for it appears to have been principally attended by Canadians, and even these were all from one province, namely, that of Ontario. There were present sixty-nine members, and of this number fifty-five came from Ontario. There were only fourteen from the States, and of these Michigan sent five, Ohio and New York each three, and the other States sent one each. There were besides seven ladies, three each from Ontario and Ohio, and one from Illinois. Under the presidency of Dr. Mason the bee-keepers seem to have had a good time, and the hospitality of the Canadians was highly eulogised.

Several topics of more or less interest were discussed. How to reduce propolis to a minimum met with various replies, J. B. Hall advising taking the honey off before the 20th July, before there is much pollen in any district. Another bee-keeper advised making everything a proper bee-space, but the majority seemed to favour the taking the honey off early. Professor Cook and some others advocated a double bee-space for this purpose. As to the best size of section, the consensus of opinion was in favour of those holding one pound, $4\frac{1}{4} \times 4\frac{1}{4}$, and seven to the foot, or $1\frac{1}{2}$ in. wide.

The Mayor welcomed the Association to Brantford, and must have amused the assembled bee-keepers by confessing his ignorance as to whether a bee was an *animal or an insect*.

In his presidential address, Dr. Mason reviewed the past year in a humorous manner, and gave several practical hints for future work.

Mrs. Buller read a paper on 'Bee-keeping as an Occupation for Women,' in which she said that, after giving it a trial far some years, she did not see why any woman of ordinary strength and intelligence should not be able to take charge of an apiary of from thirty to fifty colonies with very little assistance, and derive both pleasure and profit out of the employment.

Professor Cook thought the children should have some bees given them for their own.

Mr. McKnight thought seventy-five per cent. of women could succeed just as well as men at keeping bees.

The next topic of discussion was on a paper read by Mr. McKnight on 'Cellar *v.* Outdoor Wintering,' the general opinion being that bees could be successfully wintered out of doors, packed in chaff, with less trouble but a greater consumption of food. Some had given up cellar wintering for chaff hives with a marked advantage.

Mr. Cornish read a paper on a heat-retaining hive, and recommended straw hive-sides similar to our old Woodbury and Sherrington hives. His experiments have satisfied him that straw is a better heat-retaining hive than wood—a fact always known and admitted here, but for various reasons straw hives have given place to wood. Mr. R. L. Taylor strongly deprecated the idea of combining any other business with bee-keeping, and Mr. Macpherson read a paper on shipping queens, of interest principally to queen breeders. Professor Cook read a paper on the alimentary system or apparatus of the honey bee, and as the subject was illustrated by drawings, it must have been listened to with interest.

With the December number the *Canadian Honey Producer* ceases to exist. It has been given up owing to its editor removing to another part of the country. The *Queen Breeder's Journal* also, after publishing a few numbers, stopped and transferred its subscribers to the *Western Apiarian*, which appears to have disappeared after the first issue, for we have for our subscription to the *Queen Breeder's Journal* received three copies of this and one of the *Western Apiarian*. Why do not some of these people consider the cost before they embark in publishing, and getting money out of subscribers for which they have not the slightest chance of ever giving an equivalent? Of course these remarks do not apply to the *Canadian Honey Producer*, whose proprietors have honourably transferred the unexpired subscriptions to the *American Bee Journal* and *Gleanings*, the two leading American papers.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements*).

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

CASTS.

[6.] In answer to your correspondent, No. 2401, twenty years ago I kept thirty stocks in straw skeps, which nearly always cast second swarms, and I invariably found that they built worker comb the first year; no drone at all in consequence. I generally saved the stocks for the next year from the casts, and drove the swarms. At that time I had no one to advise me. Since I have had bar-frames I have always used foundation, but have examined a great many skeps for others with a like result, viz., combs on one side and worker comb.—ALPHA.

[7.] In the *B.B.J.*, Oct. 31st, I noticed, in the report of the autumn conversazione, Mr. Sambels bringing forward about casts building towards the side of the hive. Mr. Webster said that casts desiring drones (I generally find there are plenty of drones accompanying them) construct drone comb. This is altogether against my experience, as ever since I have kept bees it was, even with all us old-fashioned bee-keepers (before modern ways were known to us), the rule to keep casts, if they were heavy enough, because of their freedom from drone comb. If the hive was filled the same season the cast swarmed there would be scarcely any drone comb built at all. Also this very season I have noticed it, particularly where I have put casts into skeps when they swarmed, till I got a sale for them: I had at the least six lots that had been in the hives some two, some three or four days, when I took the bees out, and of course the combs too, some of them quite large pieces; they were, without exception, built of

all worker comb, not a particle of drone comb in them. I fitted these pieces into frames for further use.

Seeing this brought up again on p. 489, I thought I must give my opinion, although it is quite adverse to what Mr. Webster said. I never knew casts to build drone comb except they had lost their queen: if they had a queen what would be the use of the bees building drone comb, as the queen would not be in a condition to lay even drone eggs, at least for a few days, and in a good honey flow all the combs would be built in a few days? I have always been under the impression that casts built toward the side of the hive because there are usually not bees enough (except in large casts), so they build towards the side to conserve the heat. It may have been that the Chairman calling on Mr. Grimshaw to read his paper, there was no further discussion about it, and I should have taken no further notice of it, only that it was quoted again. What is the experience of others? Please reply.—JOHN WALTON, *Honey Cott, Weston, Leamington.*

FEED YOUR BEES.

[8.] Being only a tyro at bee-keeping, I will not presume to air my ignorance of the subject in your able columns, but as in this slack time of the year the editorial mind may be glad of 'copy' which at other times it would sternly reject, I venture to send you a little 'goak' which served me well a short time back.

I was talking to a gentleman, a patient of mine, who had been unusually dilatory in 'settling up' my little account, and the conversation turned on bees. 'Oh,' said he, 'they are a simple matter. I used to keep them' (and let them all die, by the way), 'and never found any difficulty with them. Let me give you this wrinkle—syrup is all humbug: it does not pay to feed bees.' 'Well,' I replied, 'young hand at the pursuit as I am, I am quite convinced that there is only one thing in this world that pays better than feeding bees.' 'What's that?' 'Why, *being fee'd.*' Do you see it, sir? *He* did, and sent the shekels within a week.—A MIDDLESEX MEDICO.

ADVICE WANTED.

[9.] Let me tell you how pleased I am with the new *Journal*, and also the desire you evince therein to make it of practical use to all bee-keepers. Now, I have conceived the idea that great practical help might be given to many of us, especially those who are new to the craft, if, when we think we have conceived some new idea in appliances, or systems of management, &c., we were allowed to ask through the *Journal* if any of our brethren have tried this or that, and how they found it answer, &c., and if those of your readers who are farther advanced would take an interest in us, and freely give their experiences, &c., of anything inquired about; and I think it would save many a novice some bitter experiences if he would be at the trouble of submitting his new ideas to your advanced readers and be guided by their judgment. And as a commencement I will, with your permission, submit the following:—Last season I worked over a dozen hives in the tiering-up system with narrow bodies, and found when I had got two or three on a hive and wished to add another, it was a very heavy job lifting same single-handed. Have any of your readers tried a lift, say, with three poles and a pulley, that would do this? If so, how did they find it answer? Or have any of our appliance makers brought out anything of the sort? I have an idea it could be done, and would lead to much less disturbance and jarring than lifting by hand, but should like the opinion of your readers.—W. H. LEY.

[We have not tried a similar plan; perhaps some of our readers have. Always consult us in any and every way. It is far better to invite criticism than to become involved in unnecessary expense, and perhaps disaster.—ED.]

'GLEANINGS IN BEE-CULTURE.'—We have just received the concluding number of Vol. XVII. of our thriving contemporary. We are pleased to see our twin brother still prospering, and trust that a very long period of usefulness is still before it. A supplement given with this number contains a number of interesting views of different apiaries in different parts of the world; amongst the number being that of the late Mr. W. Raitt, at Blairgowrie.

Query and Reply.

QUERY.—Will the Editor kindly tell me when to plant *Limnanthes Douglassi*, and where I can obtain the seed?—W. W. CHOLDCROFT.

REPLY.—For spring blooming the best time to sow is in July. Sown in March the plants will bloom in the autumn. It is a much more useful plant in spring. Seed may be had of any of the seedsmen, and is frequently advertised in the *Journal*.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

ANXIOUS.—From your description your candy is over-boiled. It would be best to make some fresh.

J. PIERCE.—The comb sent is affected by foul brood rather badly.

G. F. C. H.—You could not do better than sow borage as soon as you can work on the ground, towards the end of February or beginning of March.

THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

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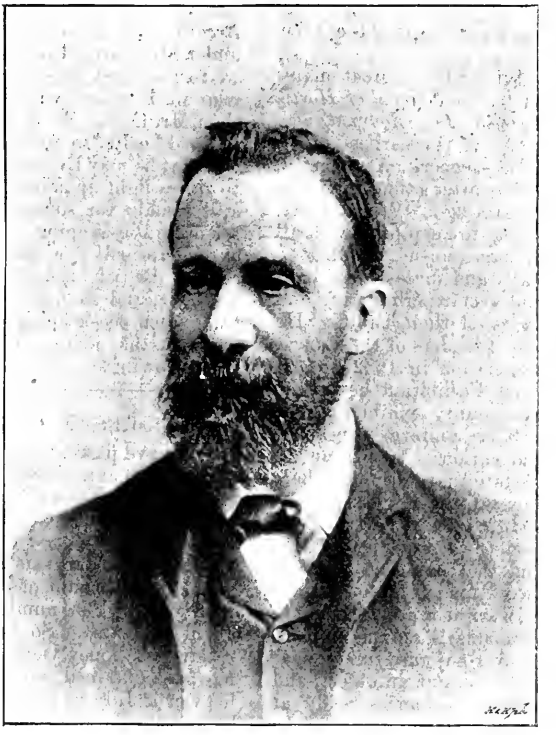
Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 20.—MR. W. BROUGHTON CARR.

We feel sure that our readers will like to know something of Mr. Carr, whom we have associated with ourselves, and who will in future take charge of the monthly. We therefore have much pleasure in presenting them with a short sketch of his life.



MR. W. BROUGHTON CARR.

Mr. W. Broughton Carr was born in February, 1836, and comes of an old stock of grazing farmers and cattle breeders settled in the district between Gisburne and Skipton, in Craven, Yorkshire. His father was a fine specimen of the powerful and sturdy Yorkshireman, over six feet high and weighing fifteen stone in his twentieth year. Full of energy and enterprise, he gave up the quiet of rural life and went to Liverpool when Mr. Carr was quite a child, and remained in business there for many years. Both his father and mother spent the last twelve years of their life with him at Higher Bebington, where in 1879, after a married life of sixty-one years, they died within a year of each other.

Mr. Carr was apprenticed in 1851 to the trade of copper-plate engraving in Liverpool, and has carried on the business in the office he now occupies for over twenty-six years. In 1861 he married, having lived in Liverpool up to that time. He has five sons and four daughters. Two years afterwards, his business being of a sedentary nature, he resolved to live in the fresh air of the country, and took up his residence on the Cheshire side of the Mersey. Here, at intervals between business, he entered into rural pursuits, and enjoyed gardening. It was about twenty-four years ago that he first thought of bee-keeping, through reading an article on bees in *Chambers's Information for the People*, and became fascinated with the idea of becoming a bee-keeper himself. How he became possessed of the first swarm Mr. Carr relates graphically in the *Record* for December last. He had never seen a swarm before that time, and took eight hours to hive these bees into a straw skep, with the help of a young Swede who was supposed to know something about bees, and who did all the work of hiving. Mr. Carr thought that if there was not a better or more expeditious way of hiving a swarm of bees than that it should take two men eight hours to do it, it was time some new plan should be thought of; he therefore read all he could about bees in the works of such men as Huber, Bevan, Woodbury, and Langstroth, which resulted ultimately in his becoming a successful bee-keeper.

More than twenty-two years ago he moved further into the country on account of the bees,

and settled at Higher Bebington, where he has resided ever since, and where he has kept from twenty to forty stocks of bees. During this time he has tried various systems of bee-keeping and different forms of hives, including the common skep and an improved skep devised by himself—the Pettigrew skep and system, frame-hives, with 'Abbott's' large frame, the Carr-Stewarton of 1874, the standard frame-hive, and his own form of shallow frame and box. Mr. Carr has specially advocated the shallow frame for extracted honey described on page 45 of our *Bee-keeper's Guide-book*. He has also advocated with this, excluder zinc, distance guides for frame ends, 17-inch top bar, and bottom ventilation in winter. His favourite hive has an outer case, and is of very light construction. His district being good for extracted honey, he has worked almost entirely for that.

Since 1871 he has been a frequent exhibitor at shows, always taking prizes. It was at the first show at the Crystal Palace, in 1874, that he made the acquaintance of Mr. C. N. Abbott and other well-known bee-keepers, who took part in it. He here entered his honey for competition, but owing to an unfortunate mishap to his exhibit he could not stage it.

Mr. Carr has been a writer for a great many years, and contributed to the *Journal of Horticulture* before the *British Bee Journal* was established. He was one of the earliest members of the British Bee-keepers' Association, which, however, he gave up after a time, rejoining it again a couple of years ago. We find Mr. Carr always endeavouring to keep pace with all worth learning in bee management, working at the same time practically and successfully, both making his bees pay and also experimenting and increasing his knowledge of their habits. He was one of the original founders of the Lancashire and Cheshire Association in 1882, and at the Indian and Colonial Exhibition he staged and superintended the county exhibit of the Association, which for its uniform excellence attracted so much attention. It is due in justice to Mr. Carr to state that, although there were ten exhibitors, by far the largest portion of the exhibit was produced by Mr. Carr's own bees. He has been on the committee of this county association from the beginning, and has frequently done tent-work for it. It has always been a treat to see Mr. Carr as a practical manipulator, or to hear his counsels on the subject. Amongst ths latter he ever enjoined *forethought* —never to touch a hive without an object, and then to have all needful appliances ready at hand; *caution*, which includes a quiet and gentle, but none the less firm method of getting to work; and *thoroughness*, or never to leave work until it has been thoroughly and completely done in every particular.

He had gone through a bad attack of foul-brood about ten years ago, which he cured, and though slight signs have at intervals since been seen (through diseased stocks of careless neighbours), he has managed to keep his bees healthy and prosperous.

Mr. Carr took an active part in the literary work connected with the *Record* since it was started in 1882, but it was not until two years later that he and the late Mr. Raitt became joint editors. This continued until last year, when, at the death of Mr. Raitt, the *Record* came under the sole charge of Mr. Carr, who has ably conducted it ever since. His evenness of temper and sound practical knowledge are seen in his replies to inquirers, and other articles. A letter characteristic of his straightforward character may be seen in Vol. II. of the *British Bee Journal*, page 62.

His office in Liverpool has for many years been a favourite resort of bee-men, who have talked over their experiences in a friendly manner, and have frequently derived benefit from Mr. Carr's long experience. Much of his valuable time has been given up unselfishly to the promotion of bee-keeping, and no sacrifice has been too great if only he could assist a beginner or impart further knowledge to one genuinely seeking it. It is his uprightness and high moral character that have induced us to associate him with ourselves, to amalgamate the *Adviser* with the *Record*, and to place the monthly specially under Mr. Carr's direction. It is not too much, we feel assured, to say that there are very few men in England who know more about bees than Mr. Carr. We hope he may long continue in good health to follow his favourite pursuit, and that he may live long in his extended sphere to throw light upon many of the problems which still remain for solution both in practical and scientific bee-keeping. The benefits of his long experience will now reach to the extreme limits of the British Empire, and also across the Atlantic, and we hope may help to hasten the time when bee-keeping will be recognised as an indispensable adjunct to successful farming and fruit-growing.

MIDDLESEX B. K. ASSOCIATION.

We have pleasure in announcing the receipt of the 1889 annual report, and we glean therefrom that, despite the disastrous season of 1888, and the continued curtailment of the cultivated area of the country owing to the spread of bricks and mortar, this Association is enabled to give a good account of its operations during the past year. The number of members remains about the same. So far as reports have been received a honey yield of about 40 lbs. per hive has been obtained, which would have been much heavier if July had been seasonable. An excellent honey show was held at Southgate, in the charming grounds of P. P. Hasluck, Esq., who has in many ways proved himself quite an acquisition to the Association. The bee-tent has been put to good use during the season, the necessary lectures and manipulations being ably given by Mr. S. J. Baldwin, the expert to the M.B.K.A. Two tours have been made by the expert, who is enabled to report a considerable decrease in 'foul-brood.' A new and at the same time excellent feature in the report is the addition of

short reports from the district secretaries on the results of the season in their immediate neighbourhood. These reports should stimulate friendly rivalry between the various districts.

Two items in the expert's report are worthy of especial mention:—'It would be well to discourage the too common practice of buying stocks, as by that means "foul brood" is being disseminated more than by any other means;' also, 'The importance of keeping the bees carefully and warmly covered at all times does not appear to be sufficiently understood or realised by bee-keepers generally, and some even of those who aspire to be considered advanced apiarians I find are very negligent in this all-important matter.'

These two extracts are pregnant with so much that concerns the well-being of our stocks, that we have reproduced them for the general benefit.

The annual meeting of this Association will be held at 105 Jermyn Street, W., on February 13th, 1890. The chair to be taken by the Baroness Burdett-Coutts at 5.30 p.m.

ALIMENTARY APPARATUS OF BEES.

If there be truth in the doctrine of organic inertia, and if modification of organs and organisms has risen wholly, or in part, through impingement upon their surroundings, then, for the maximum of differentiation, we should look to organs and organisms most used, or those most important in the organic economy.

Nutrition is the great function of animal life. To secure and prepare the food is the chief work, at least, of all the lower forms of animal life. We should expect, then, to find differentiation most marked in such organs as are useful in procuring the daily bread. Among insects, the legs, wings, and alimentary organs are the real weapons in this important work of 'bread-winning.' In bees, where the habits are so marvellously varied, we should expect a marvellous variation or modification in these organs—nor would we be disappointed. I think we would hardly except man himself in the remark that nowhere in the whole animal kingdom do we find more interesting and startling structural developments than are to be found in our study of the honey-bee.

Two years ago, at the Chicago meeting of our Association, I showed how vividly this is illustrated in the modification of the legs. The modified hairs, antennæ-cleaner, wax-jaws, pollen-baskets, and pulvilli are marvels of structural modification for the attainment of specific purposes. The functional complexity of the legs of these insects is only equalled by their marvellous development and structural differentiation.

In this essay I wish to explain the anatomy and physiology of the alimentary system of the bee. In the tongue and digestive system of this insect we find a structural modification even more surprising than that of the legs, equally, if not more, marvellous than is to be found in any other organic structures.

In this essay I shall confine myself to a discussion of the tongue, the glands, the stomach, mouth, honey-stomach, and true stomach.

It is a curious fact that long and familiarly as the bee has been known, yet in all the descriptions no one has rightly understood the bee's tongue. I know not a single description that is entirely accurate. Many of our latest writers are not as correct as was the grand old master, Swammerdam. Even the last editor of the admirable *Encyclopædia Britannica* is wholly wrong. It says (Vol. III., page 485), 'It is not tubular, as Swammerdam had supposed, but solid throughout, and the minute depression at the extremity is not the aperture of any canal through which liquid can be absorbed. It performs strictly the office of a tongue, and not a tube for suction.' Every statement in this paragraph is entirely untrue.

The bee's tongue is a double tube. The inner or central tube of the tongue is perforated at the end, and through this nectar is drawn from tubular flowers. This tube is slitted, too, near the end, on the under side, and the edges of this rigid slit are united with the corresponding edges of the outer tube by a somewhat folded membrane. The length of the tongue varies from ·23 to ·26 of an inch. It is longer in the yellow than in the black races.

At the base of this double cylinder, just anterior to where the ligula joins the mentum, the central tube opens by a short slit on its upper side. By holding bees by the wings, and permitting them to sip coloured liquids, and then by cutting off their heads while still sipping, it is easy to learn just how they sip. When they have access to a large drop of nectar, they not only draw the liquid through the central tube, but also through a much larger extemporised tube, formed by approximating their maxillæ. This is the way they suck the honey from such bountiful sources as the linden, where a single colony of bees may store fifteen pounds in a day.

In case the nectar is at the bottom of long corolla tubes, then the bee can only use the small central tube, and must sip very slowly. Again, in case the nectar is spread out thin on any surface, the bee can throw the central tube out by tightening the folding membrane, and by parting the slit can draw in and lap up the spread-out liquid. This is also a slow process.

The outer tube is imperforate at the end, and by filling this with blood the tongue is speedily elongated. Thus the tongue is extended by the action of the muscles, aided by this protrusive force of the nutritive fluid, which is also forced into the tongue by muscular action.

Connected with the digestive apparatus are three pairs of glands. The upper head-glands are high up in the head cavity, and in structure resemble a compound leaf, or the meibomian glands in our own eyelids; that is, a central tube receives the ducts from numerous follicles. These main ducts empty one on each side at the base of the mouth.

Below the glands just mentioned are the lower head-glands. These are compound racemose

glands, and empty into a long duct, which also receives the ducts from a second pair of similar glands located in the thorax. The common duct from these four glands empties just at the position of the slit at the base of the ligula, just where any secretion could be best poured into and mixed with the stream of nectar that might be drawn through the tongue in any of the three ways already mentioned.

The function of these glands has, I think, been misunderstood in part, by even such authorities as Leuckart and Schiemenz. They think that the upper head-glands secrete the larval food. I feel sure that this is wrong. I believe they secrete the saliva of bees, a substance analogous to our own saliva, in that it is mixed with the pollen or bee-bread, and renders it soft and plastic. More than this, I think the secretion from the glands doubtless furnishes the ferment which aids to digest the pollen or albuminous food of the bees. The fact that the nurse or young bees furnish chyle or digested food to nourish the thousands of larvæ of each hive, and also to feed the queen and the drones, explains why these glands are so large in the nurse-bees.

My reasons for this view are that the mouths of the ducts on the bee's mouth are just where they should be; the large size of the glands in the nurse-bees is also in harmony with this view, and except for this secretion we cannot explain the deglutition of the pollen.

The function of the secretion from the other four glands is without doubt to digest nectar of flowers. As is well known, this nectar is neutral, and contains cane sugar. Honey is acid, and contains reducible sugar. Thus honey is digested nectar, and the secretion from the large racemose glands of the bee is the agent which effects this transformation. The common duct from these glands empties just where the stream of honey from the tongue enters the mouth. This honey must be digested while in transit from flower to hive.

The fact that a colony of bees may gather twenty pounds of honey in a day explains the necessity of the great size and number of these glands. The fact that all honey is not equally reduced, and that some honey has even a right-handed rotation, is also explained. When honey is collected very rapidly, as is often true in the linden season, it is not fully digested. This makes the analysis of honey a difficult matter. I much question whether any chemist can certainly determine whether or not honey is pure. I positively know that some of our best chemists have pronounced honey of undoubted purity to be adulterated. To one acquainted with the physiology and habits of bees, this is not surprising.

The honey-stomach is a strongly muscular organ, richly lined with epithelial cells, and in no wise peculiar, except for the interesting and complex stomach-mouth at its lower end. This is a slightly oblong, nearly spherical organ, with a central passage. The four segments which comprise the anterior end are jaw-like, slightly movable, and have a peculiarly snapping motion, as is easily seen by viewing a fresh specimen under a low-power objective. Short bristle-like hairs form a thick lining to the central cavity. These hairs point downward.

The function of this unique organ is as interesting as its structure. The fine pollen grains of flowers, as you all know, are light and airy, and so float in every breeze. As they fall from the overhanging anthers, they often lodge in the same nectar that attracts the bees. Thus, as the bee sucks the nectar from the flowers, it secures at the same time more or less of this rich nitrogenous pollen. The pollen and nectar pass together into the honey-stomach. When the bee reaches its brood-nest it desires to pass the honey—for by this time the nectar has been digested—into the cells, where it is stored for the future needs of the bees. But while we find a small amount of pollen in the honey, we find much less than is found in the nectar. But how can the bees separate this pollen from the nectar? It is done by this stomach-mouth, the jaws of which are constantly opening and shutting as the bee is gathering from flower to flower, and is bearing its full load to the hive. Thus the mixed nectar and pollen are drawn into the central cavity of the stomach-mouth, when the jaws close, pressing the nectar back into the honey-stomach, while the pollen is retained by the bristles, and passed into the true stomach. This constant motion also mixes thoroughly the nectar and saliva, thus promoting the digestion of the nectar or the formation of the honey.

We see, then, that the stomach-mouth is a sort of screen, whose purpose is to separate the nitrogenous from the carbonaceous food. The former is in small quantities, just sufficient for the daily needs, while the honey comes in large quantities, and is stored up for times of scarcity.

Where the stomach-mouth enters the true stomach, the central opening is continued in a free membranous tube which hangs in the true stomach. This, of course, serves as a valve, and prevents the digested material (as it is pressed by the muscular action of the stomach) from returning through the stomach-mouth into the honey-stomach.

It is now a well-known fact that the nurse-bees digest the food for the larvæ, the queen, and the drones. It is probably true that all the albuminous food of both queen and drone is prepared by the nurse-bees.

The upper head-glands are not found in the drones, and are very rudimentary in the queen. Thus these bees are not able to take and digest pollen. They can take the honey, and so have the racemose glands, which, in case the nectar was not fully digested by the worker-bees, enables the queen and drone to complete the digestion. Thus the queen, during the active season, while she is often laying 2000 or 3000 eggs daily, receives her food all prepared for absorption, and so we understand how it is that the queen may lay nearly twice her weight of eggs daily. I have weighed laying queens several times, and find them to weigh about ·23 of a gramme, or about 35 grains. I have found that

3000 eggs weigh about ·4 of a gramme, or about 60 grains. This wondrous performance is only possible in that the queen's food is wholly digested for her by the nurse-bees.

The nature of the food given by the nurse-bees to the brood, and to the queen and drones, has been much discussed. Dufour thought that it was chyle, or food fully digested and ready for absorption. Schiemenz argues that it is the secretion from the upper head-glands. Schonfeld believes that Dufour was correct—digested pollen with additions of honey.

Schiemenz thinks that the valve that reaches from the stomach-mouth into the true stomach would make it impossible for the bee to regurgitate any food which had really entered the true stomach, and so argues, despite the location of the mouths of these ducts, and the necessity of saliva for the liquefication of the pollen, that the jelly or larval food is really the product of the upper head-glands. From several experiments which I have tried I believe Schonfeld and Dufour are correct, and Schiemenz in error. One experiment which in itself seems crucial I will explain:—

I removed from a small colony of bees all the honey, gave them a frame of brood, and shut them in their hive. I then mixed some finely-pulverised charcoal with some diluted sugar syrup, and fed it to these bees. As the charcoal is insoluble and indigestible, of course it cannot and does not pass through the walls of the stomach into the blood, and so cannot ever pass to the glands. Even if it were in the blood it could not enter into secretion, as it is a non-osmotic, and so could not appear in the saliva. Yet this charcoal appears in the food given to the larvæ. This food, then, cannot be a secretion, but must be the chyle or digested food of the nurse-bees.

That the strongly muscular structure of the alimentary tract may draw the stomach-mouth up to the œsophagus, and thus draw the valve up so that its valvular nature is destroyed, is the view of Schonfeld, and is, I believe, correct. This is, then, a sort of adjustable valve, and may prevent regurgitation or not, as the function of the bees requires. Thus we have in the stomach-mouth, as well as in the tongue of the honey-bee, examples of differentiation which are not surpassed anywhere in the organic world.—A. J. Cook.—*American Bee Journal.*

BEE-KEEPING IN SOUTH AFRICA.

We are some 600 miles from Natal, and that is our nearest point of supplies. We could not get a pound of flour at any nearer point, nor a tack nor pin. But honey is abundant here—more so than there is any demand for.

The method of bee-farming as it is carried on here is as follows: A native cuts a circle in the bark of a tree, and about three feet above he cuts another; then he cuts in a straight line from one circle to the other, and strips off the entire bark as cut. While this is still green he refolds it in the shape of the tree, and carefully sews up the centre seam; and after folding the two ends in a more or less square form he sews them up, leaving the merest entrance for necessary purposes. His thread is bark, and his needle a thorn, and his punch is his spear. This article, I will tell you plainly (you would never guess) is a beehive, and it does excellently well for this class of bees, and this system of bee-farmers, and this climate. This beehive is now placed in the top of any large tree, and others with it, and then left to future developments. It is automatic throughout, if it acts at all; self-hiving, self-swarming, self-regulating; and about half the time it appears to be an automatic fizzle as a honey-collector. I am no expert on matters pertaining to the apiary; but such observations as I have noted are from an amateur's point of view, and are to be valued as such. However, I may underrate the excellence of this system of hives.

The forests all about are well provided with these hives, and bees should not fail of finding comfortable habitations in their native forests; but they do take unaccountable notions at times, and I have had pitched battles for a week at a time to keep them out of our spare bedroom; and whenever a sack of sugar is opened, or anything they take a notion to desire, they monopolise the house till we discover what is the matter with them, and then the desirable thing is put into a strong case, bee-proof, and then after smoking, brooming, and general destruction so far as we can apply it, the bees depart till we are unlucky enough to get something else about that they conclude is desirable for them.

On one occasion, a swarm having alighted on a tree close to the veranda, and appearing to be preparing for a charge on the house, I drove them away by firing two loads of dust-shot into them at short range; but whether they were confounded by the noise, or were actually alarmed at the terrific losses sustained, or whether they had any intentions on the house or not, all is a conundrum to us; but they gathered up and went their way in about fifteen minutes after the shots.

The bee in this vicinity is not so large as the honey-bee in America, nor is it very much smaller, certainly not so small as Brother Fuller's are in India. The swarms that have alighted about the house from time to time are about the size of a half-bushel, and to all appearances I should call them active and determined workers, persistent fighters, and excellent thieves. You will no doubt at this point, if not before, ask within yourself, 'Why doesn't he hive those bees and have honey?' The answer is not far to seek. We do have honey-bees thrust upon us, and strained honey is always in the house at about ten cents a bucketful (three gallons). Comb honey we never see; but with honey so cheap, and no market for any quantity, great or small, we do not care to have the bees about. We should like nice comb honey, but even this can be had if one is at

hand when a box directly from the tree is opened.

I will now proceed with the native method of securing the honey. The hive, as stated, is placed in the tree, and in time, sooner or later, bees do come to the most of the hives, and in time they fill them with honey. The native usually visits his hives frequently, but sometimes they are left for a long time, when the honey is of richer quality and much thicker than any I ever saw in America. It is possible, with the sides of the knife greased, to cut through strained honey, leaving the furrow open and clean for a minute or so after the cut is made. Probably the climate is the chief agency in ripening the honey to so fine a state. When the hive is judged to be full, or when he sees the thing swarming, the native will take down his hive and extract the honey. This matter of 'extraction' is a simple one with him. He takes his hands only, dips in, and takes as much comb honey as he can manage, and squeezes it over and over until he gets *most* of the honey out. Then, when the hive is thus manipulated, he takes his wax and melts it in his mush-pot, and, digging a round hole in the ground, about two inches in diameter and six inches long, he runs his wax in the shape of the moulds, and in this shape it comes to market. Some of it is a rich clean yellow, and commands the best price; but more than half of it is dirty, mixed with sand, and is only two-thirds value. First-class wax brings to the native, cash in hand, 360 reis per kilo, or about eighteen cents per pound. The trader takes this wax and melts all the poorer quality in a large cauldron with a faucet some six inches from the bottom. He also adds water, and the wax, when melted, rises, and the sand and other dirt settles into the water. The wax is then drawn off through the faucet, run into cakes about eighteen inches by twenty-four, sewn up in a bark skin, and in this shape is shipped to Europe. More than twenty tons are shipped from this port annually.

But the honey. This product would be much to the credit of the country if not manufactured into something else. The honey will bring the native nothing. He would sell it if he could—he will sell anything that will bring him copper coins; so he has invented one of the worst uses to which it can be put, and in this manner honey is always in demand. He adds about three parts of water to one of honey, lets it ferment for three days (I can't say just how long positively), and then it becomes one of the severest intoxicants the country produces. It is more maddening than sugar-cane rum, and has the name of being the severest of any of the common native drinks.

Most providentially for the wholesomeness of the country, the supply is limited: and the population being great, the evils are somewhat ameliorated. The native is ingenious in some things at least. With mud-pots, with old gun-barrels for pipes, he will distil rum from sugar-cane, cashew fruit, cocoanuts, pineapples, farina, corn, sweet potatoes, honey, and one or two vegetable roots which are found in the forest. All of these substances are abundant in their season, and rum retails at about two cents a tumblerful.

The product in wax, if as much along the other coast ports as here (and I think it is more than likely), amounts to more than one hundred tons per annum: but with prices paid here, and with twenty dollars per ton freight to Europe, it would not seem possible to interfere with American prices as quoted from time to time in *Gleanings*. The possibilities for honey in this region are most favourable, without a doubt, and sufficient honey might be produced all along this coast to glut all the markets of the world, and that at the minimum rates of production; but it is very doubtful if the world will ever see this honey unless immigration sets in, or the native becomes civilised, and, what is more to the purpose, Christianised. With the former we are in no way connected, but in the latter we are hard at work, and welcome the wholesome Christian spirit manifested in *Gleanings*.—E. H. Richards, *Mongwe, Inhambane, E. Africa*.—*Gleanings*.

BRITISH BEE-KEEPERS' ASSOCIATION.

Members of the Association are reminded that Saturday, January 25th, is the last day for nominating members to serve on the Committee for the ensuing year. Notices of motions for discussion at the Annual General Meeting must also be forwarded by the same date.

Hints to Beginners.—The truth which every beginner should learn, and one that should stand out with great prominence, is that a large force of bees will do a large amount of work, and that said force should be on hand just when the labour or honey harvest is on hand. Failing to have the workers on hand at this time means a failure to secure very much of a harvest of honey. Therefore every effort should be made to secure a large stock of working bees at the time, or times, when the flowers yield the most honey, or when the plants are in bloom, which usually gives the surplus crop.—*American Rural Home*.

Excellent Paste.—To make paste that will stick honey labels to glass, tins, &c., take two ounces of clear gum arabic, one ounce and a half of fine starch, and one-half ounce of white sugar. Pulverise the gum arabic, and dissolve it in as much water as the laundress would use for the quantity of starch indicated. Dissolve the starch and sugar in the gum solution. Then cook the mixture in a vessel suspended in boiling water until the starch becomes clear. The cement should be as thick as tar, and kept so. It can be kept from spoiling by dropping in a lump of gum camphor, or a little oil of cloves or sassafras. This cement is very strong indeed, and will stick perfectly to glazed surfaces, and is good to repair broken rocks, minerals, or fossils.—*American Bee Journal*.

Humour.

AMUS PERIWINKLE'S KWEEN—DU BEEZ MAIK HUNNY?

'When dockters disagree hoo shel deside?' Eye hev seen the abuv kwotashun in print nigh onto a 1000 times, and ez no one seems to be abel tu deside the kwestyun, eye hev konkluded to deside it miself: and ez naybor Amus Periwinkle sez, 'without feer uv sucksessful kontradickshun.'

Amus Periwinkle iz mi neerest naybor. Sumthing over a year ago a swarm uv beez lit onto hiz kotton-wood tree, and he rapt a shawel round hiz hed, and went out and hived them in a empty sope box. In November he poot them into hiz seller, and kept them thare untill abowt the tyme sugar-sap began to run, when he carryed them owt, and sot them into hiz back yard. But they dident du verry well all spring—the wukers dident croud the entrans—and Amus began tu get oneesy about them. So wun day he saw Billy Grafton passing, and kalled him in tu look at hiz beez.

Billy Grafton lives about a mile owt on the rode tu Sleepy Holler, and keeps a good menny bea-hives. It dident taik him long tu find thet Amusses beez hed no kween: so he told Amus thet if heed kum out tu hiz playse, he wood sell him a good warrented kween.

In a week or two Amus went out tu git the kween; but it wuz a kold day, and Billy dident like tu open his hives for feer the beez mite stampeed, or sumthing; so he looked around to see if he cood find a kween lofing on the alitingborde. Pretty soon he picked up a droan, and told Amus she wuz all rite.

Amus hed gon to skule several terms in hiz younger daiz, but his edikashun in entymollygy wuz sumhow negleckted, and he dident no a kween bea from enny uther kind uv a bug.

Thet same afternoon Amus kame to my hous, and invited me over tu hizzen, tu introdoos hiz kween for him. Eye acsepted the invitashun, and when he brot hiz kween out, holding the kaige between hiz hands tu keep hur warm, eye kood hardly keep from laffing az soon ez eye got site uv her. But, sez eye, 'Amus, jevver see a kween bea befour now?' 'No,' sez Amus; 'this iz the furst wun eye ever sot ies onto. Sheez a buty, aint she?'

'Well,' sez eye, 'Amus, thet thares a mity helthy looking kween, but its mi beleef she want never lay no aigs nor maik no hunny.' 'Why?' sez he. 'Sheez not thet kind uv a kween,' sez eye. 'But sheez warrented,' sez he, 'and eye payed a hull doller for her!' 'Kaint help thet,' sez eye; 'sheez only a setter—sheel set all summer, but she wont never hatch nuthing.' But Amus waz surtin she waz all rite, and eye sed no more.

My plan waz tu shoo her in at the entrans, but Amus thot she wood stay on the nest better if she wer left in the kaige: so eye set her thet way and kame home.

The neckst morning eye met Billy Grafton in the rode; he laffed, then eye laffed, then we both laffed: and thets all we sed, except thet it waz a fine day for beez. Amusses beez swarmed out one at a time, and gradyully disappeared, but neckst spring he is going to by a hull swarm.

But eye am digressin. Eye hed in minde the kontrovessy now going on in the bea-paypers konserning hunny. Prof. Kook, uv the Meeshegan Kolledge, a bea-keeper of sevral 100 colloneys, and a gentleman hoo hez heertwofour stood hi in hiz professhun; hez writ a number uv peaces tu pruve thet hunny iz 'digested neckter,' which he ascertanes by a test with litmus payper.

Now, befour eye went into the bea-bizness for miself, eye suppozed thet hunny was 'digested neckter:' in fackt eye inklined tu thet opinyun konsidabel more than 45 degrees. Thet is wun of the original idees with a grate menny people. Thay think thet beez maik hunny out uv pawlen and wotter; and the modern idee, thet thay sip the neckter from the poseys and carry it tu thare hives, and bile it down with the heet uv thare boddeys, is sumpthing thet the avrage man or woman never thot ov. It kums to them, howsumever, after a few years pracktickel expeerens with beez. Tharefour eye klame thet Mister Kook is not the original diskuverer of thet hurrysy. 'The prufe ov the pooding iz in the eeting ov it.' So it iz with hunny, and no litmous payper kood konvins me tu the kontrary.

Take a peace ov litmus payper, or enny uther kind uv payper, and hold it up behind a 2-year-old hoss-kolt, and he will kick up hiz heels just too (2) feet. Tri the same experement on a mool, and if he iz in hiz prime and feeling well, the result will be jist the same. In nuther kase iz the plane ov polerizashun turned eether tu the rite or left, but strate out, and the formoola is ritten exackly the same, KI_3CK_2.

Now this wood seem tu proov the mool a hors, but it dont. The origin of the mool reeches fur back into the misty heertofur ov antickuyty. He iz menshuned bi wun ov the anshent riters, hoo states thet a sertin yung man found hiz mools in the woods (Gen. xxxvi. 24). This proovs hiz grate antickuyty: and we no posatively, from sertin karackteristics pekular tu the beest, thet he iz a highbrid ov grate strength ov eendoorens and self-kontrole, and not a hors.

The highpothesis thet hunny iz digested neckter iz untenable, bekaws, furst, it iz kontrary tu natur: seckond, it iz not in keeping with thet artistickness in housekeeping for which beez are adepts in an eminent degree; thurd, the droans woodent allow it: forth, it iz an unpossybillyty, bekaws the stumick of the bea iz bilt sumpthing like thet ov a hors, so thet the valves wont wurk both wais, and an emetick wood hev no effeckt. It maiks wun feel sort uv flabergasted tu think uv it.

Tharefour, in the lite ov modern reesurch, eye klame—and eye think eye hev suffishently demonstraighted the fackt—thet hunny iz not

digested neckter, but neckter gathured by the beez from the bokays of natur; depozited in thare sells, and biled down by the heet ov thare boddeys, into which iz then put a few drops of formick assid tu keep it from spileing. *Ergo*, hunny is assidulayted neckter, and thets why it all tastes like hunny.—WILYUM SOCKS, *Skwashtown, Ioa.*—*A. B. J.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'THE EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements.*)

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of December, 1889, amounted to 433*l*. [From a return furnished by the Statistical Officer, H.M. Customs, to E. H. Bellairs, Wingfield, Christchurch.]

AMATEUR HIVE-MAKING.

[10.] It is some time since there have been any letters in the *Journal* on the above subject, and as I think it is one of interest to many bee-keepers who cannot afford to buy even the lowest-priced hives from dealers, besides paying the carriage (which is a very serious item when hives are ordered from a distance), and to others who are fond of passing the winter evenings in doing a little carpentering, I send you a description of a cheap hive I have made this winter. It is a single-walled hive, and therefore will not meet with some bee-keepers' approval; but, on the other hand, every winter brings fresh proof that bees will winter as well in single-walled hives as in double if they are dry; however, the great objection to them, in my opinion, is that bees are more liable to swarm out of them unless they are in a shaded position.

My hive is made from Tate's cube sugar-boxes, which I get from a grocer at 3*d*. each, and it takes three to make a hive. Take them carefully to pieces, and each end will be found to consist of two pieces of $\frac{5}{8}$-in. wood of the following dimensions:—17 × 9 and 17 × 5 in., which I use for the body of the hive as follows: two of the 17 × 9-in. pieces form the sides; then I cut one of the 17 × 9 to 15½ × 8¼ for the back, and one to 15½ × 8 for the front. Nail the two side-pieces to them 14½ in. apart, keeping the front up $\frac{3}{8}$ of an inch, so as to form an entrance the whole length of the front. This will make the inside dimensions of the hive 15½ in. across the frames and 14½ in. between.

When nailed together the sides will overlap at each end $\frac{5}{8}$ of an inch; this space is to be filled with a 2½-in. plinth (two of which can be cut from one of the 17 × 5 in. side-pieces) flush with the top of the sides, so as to cover the ends of the frames.

The frames rest on a piece of galvanised iron nailed on the back and front inside the hive, $\frac{3}{8}$ of an inch from the top of the hive sides.

Two of the 17 × 9 in. pieces nailed on a 2½-in. deep battens form the floorboard, covering the joint underneath with a plinth, and will give an alighting-board 2 in. wide.

The roof is the Cowan shape, and the framework is made from two of the 17 × 5 in. pieces, cutting down one to 3 in. deep to give the slope at the back for the top and bottom end, and the sides are made from two of the side-pieces of the sugar-boxes, which are about $\frac{3}{8}$ of an inch thick, cutting them 18½ in. long, 5 in. deep at the top to 3 in. deep at the bottom. Nail these to the top and bottom pieces, to which a narrow plinth must be nailed inside, so as to let the roof come over the body-box $\frac{3}{4}$ of an inch, and on this framework nail the roof from the $\frac{3}{8}$-in. side-pieces, letting it project 2 in. all round. To make the roof quite water-tight, cover it with calico or canvas, fastened on tightly by ¼-in. plinths nailed round the edges of the four sides of the roof, and give it three or four coats of good oil paint.

Each hive should be provided with three or four shallow boxes, 6 in. deep, to take the 14 × 5½-in. frames, which can be made in the same way as the body-box of the hive.

The hive is meant to take the standard frame, with 15½-in. top-bar, and the cost of it, without the frames (which may be had for 11*d*. each set), is less than 1*s*. 6*d*., including three coats of paint.

Some of the pieces of the sugar-boxes are planed on one side; place this side outwards, so as not to use so much paint.

I shall be glad to give any further particulars if these are not sufficient.—A CHESHIRE BEE-KEEPER.

[The photograph sent shows a serviceable-looking hive, with an outline very similar to the Cowan. Can our correspondent give any further hints on other subjects?—ED.]

OLLA PODRIDA.

[11.] WOODEN COMBS.—These, according to a recent number of the *American Bee Journal*, are an accomplished fact, and are manufactured by Mr. Aspinwall, of Three Rivers, Michigan, U.S.A., who has had bees working in them during the past two seasons. The wood of the right thickness is sawn from the *end of a block of pine*, and the cells are bored nearly half-way through each side of the wood by 'gangs' of 'bits,' full worker size, then dipped into melted wax to coat the wood cells with wax, and placed in an extractor to throw off any surplus by a few

rapid turns while the wax is still in a liquid state. On reading above, I thought, Would it be possible to make some 'combs' by a process similar to *papier maché?* Would not *xylonite*, or vegetable ivory, be a nearer approach to wax than wood? Mr. Aspinwall does not tell us how many cells he is able to get to a square inch of surface. This may necessitate a larger number of combs in the brood-chamber than we have at present: but an extra comb or two would not signify, as we should have a larger supering surface over the brood-combs exactly where the bees store the bulk of their honey. Mr. Aspinwall claims many advantages for his wooden 'combs,' *i.e.*, straight combs, perfect cells, durability, strength, impossibility of damage in extractor, permanent winter passages, no hiding-place for queens on the edges of comb, increased yield of honey, combined with *non*-swarming, making the future life of the bee-keeper one of immunity from many of the cares and difficulties which now beset his path and vocation.

Brother Jonathan seems disturbed in his mind about the choice of a flower as a 'national emblem.' May I venture to remind him of the 'May-flower?' What more appropriate flower could he choose than this? What is more beautiful in vernal spring than the blossom of the May?—and according to friend Rushbridge, *vide* the *earlier* vols. of *B.B.J.*, the May-flower honey is second to none in the old country. Then, again, the May-flower must ever remain in veneration by the great American nation as carrying the embryo of a mighty people within its calyx.

Old Colony.—In the *American Bee Journal* (November 23rd), Mr. Barb gives an account of a very old colony of bees belonging to Mr. G. W. Rosenberger, of Rosendale, Rockingham Co., Va., and called by him 'The Queen of Rosendale.' It was hived in 1840, in a common box-hive, is still in the same hive, and doing as well as any hive in his yard; has stored regularly twenty to forty pounds of honey yearly, and has swarmed nearly every year. The comb in the hive is the same made first, forty-nine years ago, and the bees are just as large as they ever were. The queen is black, the common bee of the country. Our theoretical idea about the diminution of cells by repeated use year after year seems rather shaky in face of the above. Mr. Barb saw this colony on September 28th, says it was still alive and in good condition, and likely to celebrate its jubilee next June. The size of the hive is 14×12 in. by 19 high, made of one-inch pine. I remember Mr. Webster having a piece of comb at a bee-meeting at Newbury last spring some fifteen or seventeen (?) (I speak from memory) years old, and there was no difference in the size of the cells from another piece of comb two years old as far as we could judge.

Honey almanacs appear to be the latest device of American bee-keepers to call public attention to the honey industry, and to teach them how to use it as food and medicine, in making beverages, vinegar, &c.

The new year that is just opening has given us a taste of cold, frosty weather, but a sudden change to mild, spring-like weather has given our bees a good opportunity of taking a cleansing flight, and setting their larder in order ready for a return of colder and more seasonable weather, which, as far as the apiary and its inmates are concerned, would conduce to their health and prosperity later on in the season, and a few weeks' frost would also tend to keep vegetation in its proper season. If we get the buds of trees bursting early, we seldom get a good fruit year. The cold wind of March and April nips the buds, and checks their development into fine blossoms for our bees to visit, and as a consequence proper fertilisation is not accomplished, and either a stunted or dwarfed specimen is produced, which falls off before it is ripe.

Mr. John Walton, in last week's *Journal*, has about filled the bill regarding comb-building by casts. His experience is exactly with mine in the matter, and the reasons he gives appear to me valid ones. Most, if not *all*, bee-keepers must have noticed the much greater number of drone-bees accompanying a second swarm than with the first. The reason is obvious to even the merest tyro in bee-keeping, *i.e.*, the large number of drones in the hives when the second swarm leaves the hive. Mr. Webster, in a previous number of *B.B.J.*, missed or overlooked the fact of the cast building on one side of the hive, and generally on the outside of the cluster we find the drone-comb. This, of course, would be near, if not actually, the centre of the hive. Then, the following year, the bees would fill the hive with comb, leaving the centre comb, which formed the outside one of the nest the previous year, where it was built: but now, by the extension of the combs to the full capacity of the hive, the drone-comb or combs would be in the centre of the hive or cluster, and in consequence a large number of drones would be produced, which, to a non-observant apiarist, would imply that casts build an abnormal quantity of drone-comb.

Thanks very much for the speaking likeness in last week's *Journal* of our late lamented friend, Mr. G. Henderson. It does not seem possible that we should see his genial face no more. In the autumn he wrote me expressing a wish to visit my apiary, then or in the spring, and I answered suggesting the spring as the pleasantest time, little thinking the spring would be too late. 'Procrastination is the thief of time:' so runs the axiom, and I have proved the truth of it in this instance.—Wm. Woodley.

'LIMNANTHES DOUGLASSI.'

[12.] Mr. W. W. Choldcroft is asking about these plants. If he will communicate with me I can send him as many as he likes—July-sown plants, fit for transplanting now. I had a splendid show last spring, and they were literally covered with bees.—J. O. Wood, *Melbourne, The Clive, Grinshill, Salop.*

PROFIT AND LOSS ACCOUNT.

[13.] Being a member of the Worcestershire Bee-keepers' Association, I have thought that perhaps you would like a report of my bee-account for the past eleven years. I think it would interest your readers.

	Expenses. £ s. d.	Receipts. £ s. d.
1879–1882	4 17 1	1 11 1
1883	0 8 0	
1884	1 10 5	1 3 0
1885	5 3 2	2 14 10
1886	3 11 5	2 11 1
1887	3 4 8	3 7 6
1888	8 17 3	3 10 9
1889	2 0 0	11 16 11
	29 12 0	26 15 2
Debts owing		4 0 10
50 lbs. honey		2 0 0
Fifteen hives, stock valued at		9 0 0
		41 16 0
Expenses		29 12 0
Gain		12 4 0

This is an average profit of 1*l.* 2*s.* 2*d.* per annum, and honey for home use.—Jas. H. Landon.

SHALLOW FRAMES.

[14.] As I see no notice has been taken of Mr. Reid's letter in the *B.B.J.* of November 8th (No. 2381), by any of your correspondents, on frames for extracting of only 4½ inches in depth, perhaps I may be allowed to make a few remarks respecting this size. Mr. Reid's reasons for advocating these frames—that boxes of them occupy the same space on the hives as racks of sections, that two frames fit on each side of an ordinary extractor, that at the end of the season the combs answer for tying into sections, and that the boxes to hold them are the proper height as raisers for brood-nest—appear to me to apply with equal, if not greater, force to frames 1¾ inches wide and 4½ inches deep, inside measurement, holding each three open-sided 1¾-inch sections, which can be used either for comb-honey or extracting, at the will of the bee-keeper. Mr. Reid further states that his frames 'are to be spaced 1¾ inches distant from centre to centre'—the exact measurement of the wide one. I have never tried these frames, but as I use only the 1¾-inch sections without separators, and as I place more of these on my hives than the bees can possibly fill (I do this to prevent swarming, and have been very successful hitherto), I have a number of half-filled sections to extract at the end of the season. I find extracting and uncapping open-sided 1¾-inch sections a very simple matter. The honey comes away freer than from frames, and my Meadows-Raynor extractor takes twenty-four at a time. The only drawback is the extra trouble in turning each individual section, but this is obviated by extracting them in the wide frame.

Our late northern leader, Mr. Raitt of Blairgowrie, extracted his white clover sections, had the combs filled up again at the heather, and by this means, two years in succession, took over 200 lbs. of section honey from a single hive. I have no heather, but I hold my empty combs over for the year following, and have better results from them than from combs drawn out the same season. This frame, with sections for extracting, should be worth a trial, to supplement the standard frame, if one is necessary.—W. B., *Patrickswell, Co. Limerick.*

BEES SHORT OF STORES.

[15.] I have just been visiting my bees on the top of the Chiltern Hills, at a farmhouse, and I feel certain those bee-keepers who have not left plenty of stores in their hives will lose their bees before honey can be gathered or syrup given to them. Seven of my stocks facing south are as busy as in late spring; on two or three of the alighting-boards there were at least fifty bees at one time.

I stuck a row of yew-boughs up in front of them, but unfortunately they are not high enough to keep the sun off the roofs. Across the garden, facing west, I have another row which till lately faced south. Except a bee now and then to be seen coming out and returning, these are all quiet, and I wish I had taken a writer's advice and turned them all round. However, as I reckon I left 30 lbs. of honey in nineteen out of my twenty hives, I hope they will pull through all right. I have a fair-sized piece of ground in front planted with wallflowers, *Limnanthes Douglassi*, and arabis, and soon as spring comes I have 1 lb. borage, 1 lb. mignonette, and 6 lbs. mellilotus to sow, so I think I may say I am doing what I can to help them.—R. Pether, *Halton, Tring.*

CARNIOLANS, ETC.

[16.] I should like to know if any other bee-keeper has noticed the same as I have with a few pure-bred Italian stocks. I have repeatedly seen them fighting at the entrance with the bees of their own hives. Whenever I look at them there are, say, thirty bees trying to sting and kill one another as they would robbers, but I have been careful to ascertain that they were not robber-bees. Pure Italians the past season, with me, have given a smaller surplus than any other race. Like all other races a cross with them makes a great difference; but taking everything into consideration, I have found them but little before our old English blacks. For an all-purpose bee, and for everybody's bee, the Carniolan race is rightly praised as being the bee of the future. Why I object to pure Carniolans is that, for our climate at any rate, they are too excitable, and consequently they are very willing to kill their queens; this may be an advantage to the queen-breeder, perhaps. I cannot keep an imported Carniolan queen till she gets old, and should like to know others' experience in this matter. But they are

splendid winterers, very easily subdued, and at certain times (just before swarming) extremely energetic in honey-gathering: they are also long-lived. But the best stock of bees I have met with yet are those bred from a queen mated with a black drone whose grandmother is a pure Cyprian, and whose mother has been mated with a Carniolan drone. In this cross we just get the prolificness in the mother by crossing the Cyprian queen with Carniolan blood, and then again we get honey-gathering, acclimatisation, and good temper in the workers by the black drone.

To keep pure foreign races is no advantage to the English bee-keeper so far as I can see, but by judicious crossing we can get stocks to give double the surplus the blacks will. My bees the past season have given me a very good yield, having taken 517 one-pound sections and 552 pounds extracted of uniform colour. I don't think my bees stored more than a pound of honey-dew, and the blame must be attached to the Carniolans and blacks. I have never known the yellow races to store honey-dew. I find it quite correct that Cyprians can work on red clover, as my bees were working very fast in a field of it last summer, and finished some sections very late. I do not keep pure blacks, but like about one-third of English blood in crossing the breeds.

My forty stocks are wintering excellently at present, and showing no trace of dysentery whatever; they have taken advantage of the last two days' mild weather, and I took the opportunity to peep into a stock of driven bees and found sealed brood on two combs. I hardly know whether to call this time of year very early for breeding or very late, but the stock is strong in numbers. If a hive is sufficiently warm, I see no reason to leave more than eighteen pounds of sealed stores, as the brood-nest should always be contracted in March to as many frames as the bees can cover.

My hives are single-walled, but I make them of 2-inch stuff front and back with two dummies at right angles to the entrance, and in autumn I pack the hives nearly full with bags, &c., and by keeping the bees very warm they do not want American cloth to prevent upward ventilation nor much food to sustain life. Thin, cold hives, with leaky covers, are worse than the old straw skeps to winter bees in, and if a cottager cannot afford to buy a good bar-frame hive, he had better keep to the old system. I have scarcely ever had a stock of bees die in winter, but if I used thin hives I should tell another tale.

That the coming season may be as good or better than that we have just enjoyed is undoubtedly our unanimous wish.—Ernest E. Davis, *Great Bookham, Leatherhead.*

[We are pleased to have your experience, and have no doubt that a great deal can be done by judicious crossing. We can speak very highly of Ligurian bees, because with us and in our climate they have proved a success. But then, probably, they would not have done so had we not persistently weeded out all the worst, and bred only from the best, not forgetting that one of the chief features in raising good stock is to have young queens. Many dozens of Italian queens have we purchased and have destroyed, because they did not come up to our standard of excellence. It is not every Italian queen, although she may be undoubtedly pure, that is worth keeping. Italians vary quite as much as any other races, and what applies to them applies equally to Carniolans, Cyprians, or the common black bee. We consider black bees very good, and believe very much more could be got out of them by judicious breeding. A properly managed apiary ought to yield, within a few pounds, an equal quantity of honey from every hive in it, and not until this is done can we say that we have succeeded in getting the full profit out of our bees. Our principle is to use none but young queens, and we have generally superseded ours at the end of the second season, unless they showed some qualities that would make it worth while to keep them another season for breeding purposes. It is nothing unusual for driven bees to have brood at this time. We have known them to have sealed brood all the winter, and to come out the strongest in the spring.—Ed.]

OUR FIRST SEASON.

[17.] As you so very kindly gave us our first start in bee-keeping, we thought you might like to know how we got on.

We had not patience to wait for a swarm, but seeing some bees advertised in the *Journal* by the Hon. Secretary of the Dorset Association, we sent for a colony. The very day they arrived (the day before Good Friday) we made the acquaintance of a gentleman living in our near neighbourhood who takes great interest in bees, and has now twelve hives. He kindly offered to accompany us to the station to fetch them, unpacked them for us, and the next day moved them into the house we had prepared for them, and has superintended their management for us through the summer. They swarmed during the honey flow, consequently we had very little, only about 16 lbs. altogether, but they were liberal in their stings, not only to us, but to our poor little dog, who was so severely hurt that he was obliged to be shot; but we hope to do better another season, as we have two good colonies packed away for the winter. Thanking you for your kindness in writing to us, &c.—M. Innes, *Longlands, Sidcup, Kent.*

[We are glad to hear you have made such a good start. As your bees swarmed you could not expect a large surplus, and will do better another season, when you have learned how to control the swarming. We are sorry for the little dog, but dogs should never be allowed near an apiary. The wagging of their tails irritates bees, and if a bee settles on the dog it gets entangled in the hairs, and this also irritates them and causes them to sting. No doubt your bees used their stings more freely than they otherwise would have done, owing to the presence of the dog. Should you be in any difficulty or require advice do not hesitate to ask us. We are always pleased to help our readers.—Ed.]

Queries and Replies.

QUERY.—Please inform me of the best way to catch bluetits, as they are very troublesome to me, and I cannot get close enough to shoot them, and shall be greatly obliged.—A. HAINES.

ANSWER.—Bait small steel traps with a piece of suet, and set round the hives. This is a sure catch for them.—G. J. B.

QUERY.—Can you, or any of your readers, tell me if heather honey can be *extracted* from the combs, as I find crushing it spoils the honey very much?—J. G. BROWN.

ANSWER.—Unless heather honey is extracted from the comb just before it is sealed, it will, in anything like a good season, be found to set so firm as to render extracting impossible. The late Mr. Raitt invented the honey-press to meet the difficulty.—ED.

Echoes from the Hives.

Stourport, Sunday, Jan. 5th.—Bees flying freely after the spell of cold weather.

Honey Cott, Weston, Leamington, Jan. 6th.—The week just passed has been foggy and frosty, going down on the 2nd to 19 degrees. However, on the 4th it changed and came on to rain very much, also the wind was very rough, but on the 5th (Sunday) there was a glorious change for the bees. The temperature rose to 51 degrees in the shade, and for two or three hours my bees had a grand treat, almost like swarming. There was no mistake about their enjoying this glorious sunny day. It was quite a treat to me to see them out so, and hear their pleasant hum. I always think they winter better when they have a chance to fly every two or three weeks. As it was so mild I thought I would change some of their floorboards, and in doing so I had a couple of stings on my hands, which I may say I quite enjoyed. The feeling to me is not disagreeable at this time of year.—JOHN WALTON.

Royal Berks Apiary, World's End, Newbury, January 13th, 1890.—Bees had a splendid outing yesterday. Our home apiary was one merry hum, reminding one of the month of May rather than January. The sun was shining brightly all day, with a soft west wind blowing, and the bees took advantage of it for a cleansing flight, and some strong stocks did a little tidying up of the interior of the hives, such as carrying out the dead, broken cappings, &c. The continuance of mild weather will give bee-keepers an opportunity of taking a peep at the stores, and if such should be running short a cake of soft candy should be given. I am wintering with 'Hill's Device,' or substitutes, this year, and whenever I have had occasion to examine a colony during the past autumn I have invariably found the bees clustered in the spaces formed by the pieces of wood forming the passages over the combs. Will give results later on in the season.—W. WOODLEY.

Notices to Correspondents and Inquirers.

T. S.—You will hear from the person to whom we have sent your postcard.

S. W. R.—Your plan would be almost certain to lead to robbing; besides, you would find the bees would damage every section. The secret with section-racks is to do the trick quickly. Raise the quilt, puff the smoke rather forcibly—the bees immediately run down—then have the rack off before they can get up again; cover up the hive *at once*, give the rack a good shake and a few puffs of smoke, then carry it into any available room. Stand it well away from the light, and any few remaining bees will get to the window. If you once let the bees get up again you will have endless trouble to get them out.

F. G.—Bees do not *gather* wax (see page 11 of *Guide*). The brace-combs you notice are nothing unusual, and though to us they appear useless, we have no doubt they are of importance to the bees, as they invariably build them where a greater space than a bee-space—about $\frac{5}{16}$ of an inch—exists in the hive. We should think your bees are getting short of food. Place a cake of candy over the feed-hole in the quilt next the frames, but do not disturb the quilt.

J. PESCOD.—They can be used either way, but to benefit by the two extra bee-ways you will require slotted dividers, which can be obtained in zinc from any of the dealers who advertise in our columns. You will find them answer very well in your present racks with above dividers.

G. ASHFORD.—We are sorry we cannot supply you with the information you require. We make it a rule not to recommend dealers, and must refer you to our advertisement columns. The dealers advertising there can supply you with all that you require. Please read notice at the head of this column last week.

G. B.—When a second section rack is placed on a hive, it should go between the top of the frames and the bottom of the rack already on. That is why we spoke of 'raising' the first lot, meaning that, in order to get the second rack in position, you had to raise the first rack. The first rack is then left on the top of the second, until the first is capped over. Excuse the tautology, but we wish to make the operation quite clear to you; if we have not, have no hesitation in writing us again. In case of any future correspondence, kindly comply with our rules and favour us with your full name. We might have sent you a diagram by post to assist you, if we had known to whom to address it. Combs are cut from a skep by a skep-knife specially made made for the purpose, or broken off by bumping the skep on the ground. The skep should be held so that it strikes the ground with the combs parallel, not vertical, to the point of impact. Extract the honey by all means.

THE

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Editorial, Notices, &c.

CATCH THE CHILDREN.

It has been said by an eminent man of the present day that, given the children, it is possible to mould a nation to any desired idea. Musing on this statement it has occurred to us that we as bee-keepers might enormously increase our fraternity, and, consequently our power for good, if we gave more attention to our children and young people. Dzierzon and Abbott are two instances in support of our contention which occur to our mind. In both cases, having become interested in bees in their boyhood, they became so enamoured of the pursuit that it exerted a very considerable influence on their after-life.

The questions will naturally occur to many, How can the children be caught? and Who is to undertake the work? We will deal with the second question first. Our experience leads us to affirm that any fairly intelligent bee-keeper can easily interest children in bees, and that the very fact of his trying to teach the children will be found a most excellent way of increasing his own knowledge, for children have a very naïve way of propounding the most complex questions. We have frequently, after duly cautioning the youngsters as to the pains and penalties incident to any affront they might offer the bees, opened up a stock and had a most attentive and appreciative audience while we have explained the various wonders of bee-life. The invariable result of such an *al-fresco* lecture has been numerous applications to exhibit our 'tame' bees. Surely this is a field for spreading a knowledge of bee-keeping that may be cultivated by all.

The schoolmaster is, above all others, *the* man for the work, but we can quite believe that he, like other men, is glad to indulge in a change of occupation, and therefore does not care to prolong his teaching duties beyond the regulation hours. May it not be possible to arrange for a general campaign in this direction? Lectures, illustrated by the magic lantern, might be given in the village schoolroom during the winter months, that would induce many to desire the privilege of further information as soon as the spring weather arrived. Those who have hives would feel a new pleasure in them after having given the youngsters a view of their wonders.

The above remarks, although primarily intended as an answer to the second question, really apply in a great measure to the one, How can the children be caught? But in further answer to the latter question we would suggest that the older children should be given the possession of a hive, all their very own. It is wonderful what an incentive the fact of personal possession proves. Those bee-keepers who have children should not find it inconvenient to hand over a swarm to a deserving olive-branch. A little regular tuition and occasional help and the parent will, in a season or two, find himself with an efficient assistant, to whom he can delegate his duties during an enforced absence from home. This of itself would be an immense personal gain. In villages and country places a swarm of bees might be offered as a prize for the boy or girl who proved to have benefited most by the winter course of lectures, a condition being enforced that the winner must not sell them during the first season. With a little fostering care a colony of such young bee-keepers might be established, and a further impetus given to it by offering prizes for honey produced by such prize swarms only. Once get the spirit of emulation aroused and it is astonishing what great results may be attained.

Our noble President, the Baroness Burdett-Coutts, and the Committee of the B. B. K. A., have exerted their influence to get practical bee-keeping made one of the

subjects in the optional list of the Educational Code. Were it made a grant-earning subject we have little doubt that ere long it would be freely chosen by both teachers and scholars.

We notice the Worshipful Company of Fruiterers are endeavouring to raise a fund to provide education in the art and mystery of fruit-culture. It would be a grand addendum to their present scheme if bee-keeping could be extended at the same time. Mutual benefit would be the result. Possibly the B. B. K. A. may see their way to giving this suggestion a tangible reality.

We desire the general extension of bee-keeping because it would place a most nourishing and highly beneficial food-substance within the reach of all, and at the same time give many a far deeper insight into the wondrous works of the Almighty.

A WORD TO THE RECRUITS.

We so frequently have almost similar queries from beginners that we propose referring to a few points of considerable importance to the uninitiated, in the hope that they may be enabled to avoid expense, annoyance, and disaster.

A swarm in May should be the foundation-stone of every new apiary. Avoid the purchase of old stocks. An experienced hand *might* secure a bargain; it is probable a beginner would *not*. There are so many contingencies, as to temper, working qualities, preparation in the previous autumn, and care in the preceding winter, that make it very risky for the beginner to commence with old stocks. A swarm is far more likely to go to work with a will, and, properly studied, will give a large insight into the science.

Before purchasing the swarm, have ready a *new* hive, properly fitted up with full sheets of foundation. Any one among the several dealers who advertise in our columns will supply a really useful hive at a moderate price. Second-hand hives should be severely left alone by those commencing bee-keeping. Their faults *may* be many, to wit: Foul-broody, leaky, not of standard measurement, of an antiquated and consequently less useful pattern, and probably of a generally rickety constitution. Old combs may also provide foul-brood and wax-moths, neither of which are conducive to success.

Various odd fittings offered cheap should *not* tempt our friend while he is still only on the threshold of the study. The actual requisites are but few, therefore first find out what you really must have, then get it. Many a good promising bee-keeper has thrown the study up in disgust because he has been led into unnecessary expense at the outset.

Once started, a very watchful eye must be kept on anything which is heralded as about to completely revolutionise bee-keeping. Possibly, if many of these much-vaunted articles were generally adopted, there would be a revolution in bee-keeping, but certainly not in the honey extractor. To the old experienced hand it is often amusing to watch the resurrection of some old exploded idea. Not so with the novice; he takes the bait and then wishes he had not.

The articles absolutely necessary are—A hive of standard size (properly fitted with, say, ten frames, furnished with foundation and division-board.) A smoker, feeding-bottle, quilts. A veil. The bees, and a section-rack, with sections fitted.

For which an outlay of 2*l.* will be found ample.

Gain experience by seeking information from every bee-keeper you can make the acquaintance of. Read every available standard book you can, such as Langstroth *On the Honey Bee;* Cowan's *Guide-book;* Root's *A, B, C;* Quinby's *Mysteries;* Cook's *Manual*, and others. Join your County Association, and do not fail to read your *B. B. J.*, and then favour us with any question to which you desire an answer.

In conclusion, having been taught yourself, make it your chief pleasure to teach others. The world is very wide, and there is still an immense amount of room for more of that kindly spirit which has its greatest delight in helping one's neighbour to the *best* of one's ability.

USEFUL HINTS.

The Weather during the last fortnight has shown considerable variation. Mild, then severe frost, followed by a continued rise in the temperature until the 7th, on which day the sun shone out gloriously, and a maximum shade temperature of 57° was recorded. This was a grand opportunity for giving candy to any stock likely to require it. It was the highest maximum shade temperature recorded in the same neighbourhood during the month of January for the last thirty years. The mean for the day was 52·5°, which is 16° above the average, and really corresponds with the normal temperature in the middle of May or the first week in October. The lowest temperature on the the nights of the 6th and 7th was 48°. Only on five other nights since September has it been so warm, but not since the middle of that month have we experienced two such warm nights in succession. During January of last year there were only six days in the whole month when the *maximum* temperature was as high as the *minimum* recorded on the nights of Monday, the 6th, and Tuesday, the 7th. Curiously enough, Paris was 17° and Lisbon 6° cooler than we were. On the 7th the hazel-bushes in South Essex were in full bloom, and the bees busy among the pollen fully a month earlier than usual. Wednesday was slightly cooler, with a very damp atmosphere, the humidity registered being 93°, absolute saturation being 100°. Friday was another glorious day, but with a chilly, searching breeze.

Feeding, only where it has been neglected in the autumn, must now engage the bee-keeper's attention. The warm spells and occasional flights will increase the general activity of the stocks, and with the commencement of breeding a very heavy consumption of stores will ensue. Do not commence stimulative flour-candy yet, as we are almost sure to suffer with a cold snap, possibly of some considerable duration, and it will be found to the best interests of the stock not to commence stimulative feeding until such time as we can assure a regular continuance of the treatment. Regular systematic feeding is of the highest importance. Feeding by fits and starts will cause a stock to dwindle more rapidly than if left alone, provided always that they have sufficient to maintain life. No colony must, under any circumstances, run the slightest risk of becoming short of stores, or, with the sudden waves of heat, they will probably swarm out and be lost. The article by Mr. Jeffrey on page 18 is well worthy of careful study, and we hope many of our fellow bee-keepers will endeavour to record data concerning the various stocks in their apiaries. The subject of consumption of food in connexion with the laying on of flesh has been prominently brought before the farmer, and also before the dairyman as regards the production of milk, and as a general rule the moderate consumer gives a larger proportionate return. It is a very fair inference that our bees follow the same rule. We are ardent believers in the efficacy of systematic selection, and consequently have little doubt that the 'coming bee,' so much sought after by our American cousins, will not be found in some new variety, but obtained by thoughtful selection and systematic breeding from strains carefully selected for quietness, persistent foraging, small consumption of winter stores, and sturdy constitutions as regards the workers, and for the prolificness of the queens. No race at present before us stands quite A1 in all these points, but it is far from being beyond belief that we may, by methodical breeding, develop a bee nearly, if not quite, up to the desired standard. Many have selected their queens owing to the brilliancy of the markings shown by their progeny. In bees, as in most other things, great usefulness and superlative beauty are seldom to be found in the same individual. We notice in the *American Bee Journal* that attempts have been made to convey a colony of *Apis dorsata* to the States, but without success. It is therefore suggested by a Canadian bee paper (which is not identified) that the eggs should be obtained, placed in a preservative and conveyed to the States, and then put into stocks of ordinary bees to hatch out. This is not described by the *A. B. J.* as a joke at the expense of a contemporary, but it can bear no other interpretation. But we are of opinion that the successful introduction of *dorsata* to America would not be an altogether unmixed good, owing to its spiteful temper and other characteristics, which make it quite unfit for domestication.

Planting for Bees is a subject on which we are frequently consulted. When the bee-keeper holds the land, weighty considerations may compel him to crop in a manner not exactly suited to the production of the largest honey crop. On the other hand, small patches of bloom are not of great benefit, except very early in the year, when such plants as wallflowers, willows, and hazels will provide enough *fresh* pollen to give a healthy stimulus to breeding. For waste ground, hedgerows, and odd corners, probably no flower is so suitable as borage. It is very hardy, and reproduces freely from dropped seed. Sown in March it will afford an abundance of continuous bloom until cut down by severe frost. Not being a noxious weed, little opposition would be found to arise when seeking permission to scatter the seed. Raspberries afford a rich hunting-ground for our bees, and with these we have the satisfaction of getting a rich, luscious fruit. Raspberry canes are cheap, and may be planted almost anywhere, provided the soil is friable and fairly cool, otherwise the honey crop is considerably reduced. In some parts of Scotland many acres of the woods are underplanted with raspberries to provide close cover for the game, and in boyhood's happy days we have enjoyed many a feast of the fruit, while honey stored by bees in the immediate neighbourhood was exquisite. Mignonette gives a most delicate flavour to honey, but it is seldom that plantings are sufficiently large to be of use, except in the immediate neighbourhood of such florists as grow it for cut bloom.

Spare Gear should be overhauled, and any defects made good before the general press of work renders us too busy. Get everything thoroughly cleansed, and, where desirable, well painted, as soon as circumstances permit.

Supplies should now be ordered. It is unfair to put off ordering till the season is in full swing, and then blame the dealer because the goods are not received within twenty-four hours.

Tits are making themselves very troublesome just now. Only the other day we watched one bird capture seven bees. A strip of very small-meshed galvanised wire netting can be so fixed over the floorboard and porch as to prevent their depredations. Snares of horsehair may be fixed about the floorboard, or a spring steel trap may be baited with a piece of suet or a few dead bees. Where no objection exists, a gun will be found efficacious.

Associations.

IRISH BEE-KEEPERS' ASSOCIATION.

The Committee met last week; present: Rev. P. Kavanagh in the chair, Rev. Canon Sadleir, Dr. Traill, Messrs. Millner, Read, and Chenevix (Hon. Sec.).

Some financial business was transacted, and a day appointed for the annual audit of the accounts.

DEVON AND EXETER B.K.A.

I am sorry that, for the present, the operations of the Devon and Exeter Bee-keepers' Association are to be suspended. This is a great pity, seeing what valuable work has been done by the Society for some years past. Matters, I am told, stand thus:—The Society's first Secretary was Mr. W. N. Griffin, of Rock House, Alphington, whose practical knowledge of bee-keeping gave an impetus to the Association at the very outset. After seven years Dr. Dangar joined Mr. Griffin, and the two, by dint of hard work, made known the value and operations of the Society in every part of the county, lecturing to the cottagers, holding shows, and exhibiting the most approved appliances for scientific apiculture. Mr. Griffin ultimately left the county, and for three years Dr. Dangar was sole Hon. Secretary. His other duties, however, necessitated his resigning office, as the bulk of the work of the Bee-keepers' Association had to be performed at his busiest time of the year. Mr. Dallas then stepped in to fill up the gap, not as a bee-keeper, but at the request of the Council, and to oblige them at a time of difficulty. After a short tenure of office, the Rev. W. R. Barnes succeeded Mr. Dallas. But neither of these two gentlemen being bee-keepers, and not having sufficient leisure at their disposal to visit apiaries, they have successively retired from the office of Hon. Secretary. If any gentleman of leisure, and one who is also an enthusiast, will come forward to fill the vacant post, the work of the Society will be resumed as heretofore; until then it must remain in abeyance. There is ample work to be done, and there are funds in hand. There is also, I am told, apparatus of some value belonging to the Association, so that the only thing needed is the man to work it. Where is he?—*Devon and Exeter Daily Gazette.*

Extracts.

THE COMMON HOUSE-FLY.

I do not wonder that any one should feel an interest in an insect that forms such an important factor in our domestic affairs as does this insect. It eats our pudding with us, and even out of the same dish. It daintily sips not only of our tea, but of the cream and the sugar that season it. No wonder the great Swede, Linnæus, named it *Musca domestica*. It rooms with us, eats with us, drinks with us, and any one accustomed to take afternoon naps would be glad if it would only sleep with us.

This fly is too well known to need description. It belongs to the order *Diptera*, as it has two wings, suctorial mouth-parts—flies and mosquitoes stab and suck but do not bite—and passes through complete transformations. By this last we mean that the first stage—maggot—is not at all like the succeeding stages of the insect. It belongs to the family *Muscidæ*. Such insects have short antennæ, with a full plume on the last joint, and heavy, short bodies. This fly hibernates in winter as a fly. Fortunately, most of them never wake to life in the spring; but enough of them survive to make things lively about August and September. The house-fly lays more than 100 whitish elongated eggs. These are laid in horse manure, on which the maggots feed. The eggs hatch in about twenty-four hours. The larva, or maggot, looks very much, and is very much, like that of the meat-fly, or blow-fly, with which all are doubtless familiar. When fully grown it is from one-fourth to four-tenths of an inch long, and is about one week in getting its full growth.

This fly, like many others, pupates in its last larval skin. It is rounded and seed-like as a pupa. Such pupæ are called puporiums. The pupa state lasts about a week. We now see why these flies become pretty numerous along in dog-days. Each female lays more than one hundred eggs; and the time from egg-laying to maturity is only about two weeks. Most of us have studied geometrical progression. Here we see it illustrated. Suppose one fly commenced 'to multiply and replenish the earth' about June 1st. June 15th, if all lived, would give 150. Suppose 75 of these are misses. July 1st would give us, supposing no cruel wasp or other untoward circumstance to interfere, 11,250 flies. Suppose 5625 of these are females. We might have, July 15th, 843,750 flies. For fear of bad dreams, I will not calculate what might be by September 15th. Some of us who have some time stopped at third-rate hotels quite understand it. From what I have said it is easy to see how that a horse-stable near the house is favourable to the fly nuisance. Slops about the wood-shed of course attract flies. So the neat, tidy housewife is less tormented than one not so blessed with this kinship to godliness.

We provide in three ways against these pestiferous house-flies. First, we have screens to all our windows, and to such doors as are much used, especially the outside doors to kitchen and dining-room. The screens to the kitchen windows are full length, so the windows can be opened either from above or below. We believe in fresh air; and with this arrangement we get it. Secondly, the screen to the pantry window, to each of the dining-room windows, and to one window of each of the other rooms, is hinged at the top to the upper sash. Thus, by darkening all the other windows, the flies alight on this hinged screen. We now push the screen quickly out at the bottom, brush rapidly with a palm-leaf fan, and, lo! the flies are all outside.

Thirdly, in case the flies get too thick, we use pyrethrum, or, better, Californian pyrethrum, or buhach. Toward night we try to attract all the flies into the kitchen by darkening the other rooms, and placing odorous sweets exposed in that room. At ten o'clock—bedtime—we scatter, by means of a ten-cent bellows, a little of the powder into the room. The next morning the flies are dead, or partially paralysed on the kitchen floor, and are swept up and cremated in the kitchen stove before any revive. Mrs. Cook

prefers the hinged screens in the main, as too free use of the pyrethrum does spread a fine dust on the furniture which is not desirable.—A. J. Cook, *Agricultural College, Mich.—Gleanings.*

EXPELLING THE BEES FROM THE SECTION-CASES.

Much has been written of late, and many inquiries made, as to the best and most effective method of expelling bees from the surplus stores. Smoke, being the acknowledged factor in terrorising and driving as well as quieting bees, has long been used for that purpose, and when judiciously and intelligently applied, it has been a most satisfactory agent.

My plan is inexpensive, simple, and efficient, and I trust will command the attention of all bee-keepers who work their apiaries for comb honey. It is as follows:—

Take a smoothly planed board, just the size of the section-case, only about two inches longer; nail three strips, $\frac{3}{8} \times \frac{7}{8}$, on the three face edges of the board, leaving one end open for smoke, and now it is ready for work if the honey is ready to take from the hives.

To do the work quickly, arm yourself with smoker, chisel, and smoking-board, located on some convenient hive or other place. Now lift the hive-cover clear away, turn back the enamelled cloth quickly from the case, pour in smoke rapidly between all the openings of the rows of sections, and in about one minute, if well done, it will frighten nearly all the bees below.

Then, with chisel, quickly remove the case to the smoking-board, cover the hive securely, and pour the smoke into the 'pocket' between the board and case, and the air-current created thereby will lift bees, smoke, and all to the surface, and with a light brush of long feathers, made from the tail of a turkey, whisk them off, and the work is done. I can do all this inside of eight minutes on an average, and have the honey in the honey-house without a bee being left in a single case.

In this way I can go through a hundred colonies in one day, and lift all the surplus honey that is finished, without attracting the cupidity of a single robber.

By operating the foregoing plan no laggards are left behind to cut holes in the cappings, and otherwise mar the combs, then leave through some escape when they get ready.

Some have found fault with smokers for throwing sparks and ashes on the combs when operating. This is the result of filling the smoker furnace with fine, trashy stuff, instead of clean chips of rotten wood, that emit no sparks or soot. I use apple-tree wood for my smoker, and find that it is the best of all.

I find that the best time to remove surplus honey from the hive is from 10 a.m. to 5 p.m., when the bees are largely in the fields. Early in the morning, or late in the evening, they are almost sure to sulk and adhere to their stores.—J. W. Bayard, *Athens, Ohio.—American Bee Journal.*

Foreign.

AMERICA.

The latest development of ingenuity we find described in the *American Bee Journal*, and it consists of wooden combs, invented by L. A. Aspinwall, of Three Rivers, Michigan.

The 'combs' are made by sawing pieces of wood the right thickness from the end of a pine block. In the sides holes like cells are bored by gangs of little bits, which are not allowed to meet, leaving a base for the cells. These so-called combs are then dipped in wax, put into an extractor, and the surplus wax is thrown off by running the extractor rapidly. The following are some of the advantages claimed:—

1. The combs are absolutely straight and cells perfect.
2. They are very durable.
3. They admit of rough transportation.
4. The bee-moth larva cannot infest them.
5. Honey can be extracted without damage to combs.
6. Drone and worker increase can be controlled.
7. They admit of permanent queen and winter passages.
8. An increased yield of comb honey can be obtained.
9. The queen can be found more readily.
10. The hive furnished with these combs can be worked as a swarmer or non-swarmer.

He thinks that, as it is impossible for bees to rear drones in these hives, and as they will not swarm without drones, they will not swarm at all.

Professor Cook has already a colony of bees on these combs, and we may possibly hear something further about them. We are, however, not quite so sanguine about their success as the inventor.

FRANCE.

Some of the prefects in France are adopting measures which, if carried out, will be the means of destroying the industry. Bee-keeping is generally carried on by small holders, persons having small plots of land enclosed by low fences, and adjoining similar small plots. Hitherto there has been no restriction on keeping bees, so long as they have not interfered with the comfort of the neighbours. We suppose some person has got stung, and has appealed to an ignorant official to suppress the bees. At any rate the prefects are putting in force regulations which are very harsh upon bee-keepers. In the department of Seine-et-Marne the order made by the prefect is that the distance between the hives and neighbouring properties, or public highways, is to be *twenty-five metres*. The mayors, gendarmes, and police are instructed to see this order carried out. If carried out it will result in the destruction of nine out of ten hives.

In the department of Oise the order is five metres on enclosed properties, and twenty metres on properties not enclosed.

In the department of Seine-et-Oise the distance is to be ten metres.

Unless the bee-keepers combine and take action, it will not be long before the industry becomes extinct. In such a case a strong society like the British Bee-keepers' Association, with its numerous branches, could make its influence felt: but they have no societies analogous to ours, theirs being local societies independent of each other, each working for itself.

GERMANY.

In order to encourage bee-keeping generally, to check the import of foreign honey by producing native honey in larger quantities, and at the same time to procure the means of providing a source of earning money for families that are not in affluent circumstances, as well as to have an occasional honey-comb to delight their children, but more especially to draw fathers of families from the public-house, a few bee-keepers have commenced the experiment of supplying sometimes to a mechanic, postman, railway man, or agricultural labourer, good swarms, with sufficient comb and honey, on condition of their undertaking to provide suitable hives for the bees. A colony thus presented to any one becomes his property when the number of colonies has been raised to three, and on the understanding that the fourth swarm shall be presented by him on similar terms to another beginner in bee-keeping who is to be named by the Black Forest Society, or chief of the district.—*Bienenzeitung.*

WELL ENDED, WELL BEGUN.

Who can depict the coming speed
Of coming bee, or coming steed,
With nerve to outstrip the iron horse,
And vie with the whirlwind round the course?

'Tis man that builds the iron steed:
His limited wisdom means limited speed.
Infinite wisdom provides the nerves
Adapted to the age it serves.

In balance nice weigh nature's law,
Of growth and fitness 'gainst a straw:
Read on your standard when you're done,
Whate'er ends well was well begun.

—W. H. Stewart.—*American Bee Journal.*

Gleanings.

With regard to the temperature at which bees fly, G. M. Doolittle says in *Gleanings* that he does not agree with the statement that bees in health seldom go out of their hives unless the temperature of the air runs to about 55°. He reminds his readers of his experiments in keeping his cellar at that temperature by means of an oil-stove, and how all the bees left the hives during February and March, causing the loss of them, while they were quiet and wintered well at a temperature of 45°. He has found that bees are comparatively inactive during November and December, no matter what the temperature may be; but as spring draws on, bees seem to realise it, and the temperature at which they were quiet in December will not be endured by them later on. During the month of April he has frequently seen bees bringing in pollen at 42°, and general work done later on with the thermometer between 48° and 50°.

The latest thing in honey packages is one recommended by a correspondent in the *Canadian B. J.*, and is the using of sausage skins. Fancy how appetising such a package would be! The editor thinks it worth experimenting with, but we should be sorry to see such a package introduced into this country. Besides, honey in a liquid state could not be sent about in skins without its leaking and causing a mess. We used to use such skins over honey jars, but could never make sure of their not leaking.

In the *Exchange* L. T. Hawk says that it is probably true that many bees are naturally cross, but he is of opinion that the vast majority of the irascible colonies are made so by training. Careless handling will spoil the disposition of any bee that is worth having. A cover fixed down with a snap, a frame dropped into place with a bang, a few bees rolled between the end of the frames and the hive wall, or crushed under the honey-board, and the colony will resent it for weeks. Humanity and good policy alike demand that the bee-keeper kill as few bees as possible in manipulating his hives.

In the *Apiculturist* H. Alley says young queens, as a rule, commence to lay from thirty-six to forty-eight hours after they become fertile. The time varies according to the season. During the honey harvest nearly every young queen will commence to lay in about thirty-six hours after mating. Later in the season, when no honey is being gathered, it requires from forty-eight hours to three days.

In the *American Bee Journal* J. Van Denzen advises, for fumigating a room or receptacle for surplus honey, to get a small kettle with a round bottom, and a piece of heavy tin or iron four or five inches long, bent to fit the bottom of the kettle. Put into the kettle what roll brimstone you need for the size of the room, heat the iron and put it on the brimstone. The iron should be just red in the dark, but not to show by daylight. If too hot, the brimstone flames up too much. A small apiary may have a large box fitted for the purpose, when an ounce or two of brimstone will answer, while a building may require one-half to one or two pounds, according to the size of the room.

The *Apiculteur* gives a test for discovering the adulteration of honey. If starch be present, or other insoluble substances, the honey should be put into cold water, which will dissolve it, and the insoluble additions will be deposited

at the bottom of the vessel. Generally, however, the adulteration is by means of glucose, whose presence is detected by dissolving ten grammes of the honey in twenty grammes of water, adding to the liquid a few drops of iodide of potassium, which will immediately turn it brown if glucose be present.

In the *Canadian Bee Journal* C. C. Miller has an article on the width and thickness of top bars to prevent the building of brace-combs. He alludes to the top bars used by J. B. Hall, of Woodstock, which are one inch square, and were said to prevent brace-combs. Up till lately he has used the Heddon honey-board, which has failed to prevent these combs, although formerly he was free from them. Dr. Miller attributes the brace-comb to the fact of his not cleaning the tops of the bars at the close of the season. He always used to scrape off clean the tops of all brood-frames, and also to clean off the honey-board at the close of the honey harvest. Latterly he has neglected this, thinking the bees would have to fill these spaces again. To clean the top bars he takes a common garden hoe, and while an assistant blows over the top bars just enough smoke to keep down the bees out of the way, he hoes off everything, leaving the top bars clean. The hoe also makes rapid work in clearing off the honey-boards, the spaces being cleaned with a flat garden trowel.

In the *Deutsche Illustrierte Bienenzeitung* Pastor Schölfeld describes his experiments with respect to drones. He finds that drones depend on food given to them by worker-bees, and that they do not feed themselves. He placed some drones in a double cage, with honey, in such a manner that they could not be fed by the workers, but had to rely entirely upon the honey furnished them for sustenance. All these drones died the third day. He then placed the cage so that they could be fed by workers, and found they lived for weeks, notwithstanding their imprisonment. He comes to the conclusion that drones cannot live longer than three days without the rich food supplied to them by the workers. This also explains how the bees perish in the autumn. They are not driven out of the hives, because such a proceeding would be noticed by the tumult it would occasion. The food is not supplied to them by the workers, and as they are not able to live on honey alone they perish. This is why the slaughter of the drones is accomplished so quickly.

In the *American Bee Journal* we find C. Dadant and Son give their honey crop as 45,000 lbs. from 450 hives; J. A. Thornton, 14,000 lbs. from 250 hives; J. M. Hambaugh, 15,000 lbs. from 240 hives.

The German Central Bee-keepers' Society held a Congress from the 6th to 9th September last at Stettin. This is one of the largest societies in Europe, and numbers 25,000 members. There were 700 bee-keepers at the Congress, and 5000 persons visited the exhibition in connexion with it.

Dr. Dzierzon, who is now seventy-nine years of age, attended the late Congress of German and Austrian bee-keepers at Ratisboune, in Bavaria. The Baroness of Berlepsch, Carl Gatter, Prof. Kunnen, of Luxembourg, Baron Ambrozy, and many other distinguished apiarists were also in attendance. This was the thirty-fourth annual meeting.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements.*)

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

CASTS AND DRONE-COMB.

[18.] I was rather surprised to read Mr. Webster's experience that casts commence building drone-comb, as my own experience has always been the opposite. I generally keep a cast or two, on purpose to have a young queen if I get a stock queenless, or one that is not satisfactory, and I let them build their own comb—of course giving them starters if on frames—and they always build the most perfect worker-comb. I have in my apiary now two casts that built themselves up strong enough to stand the winter, and they have not one drone-cell. Mr. Cheshire, in his book, *Bees and Bee-keeping*, writes that casts may be made to furnish beautifully regular worker-comb (since casts build worker-comb only, unless they should lose their queen). To Mr. Walton's letter I can say, Amen.—E. HANCOX, *Sandford-St.-Martin, Oxon.*

THE SEASON IN IRELAND.

[19.] As an indication of the mildness of the season during the past week and to-day (11th January), I have watched the bees in Mr. W. G. W. Flynn's apiary, busy carrying in pollen. The ivy is very abundant in this neighbourhood, and I fancy it is from it the bees are working. Mr. Flynn is about the most advanced apiarian in this locality, and works his bees on the frame-hive principle. All his stocks, though well provided for at the close of the honey season, are now short of food, and as a result bee-candy

has to be given liberally. Other bee-keepers may find their stocks, owing to the open season, in a similar position, and their neglect in feeding now will record many deaths before the spring fairly comes round. With many others of the craft I deeply mourn the loss of Mr. Henderson. For many years I had constant communication with him on bee topics, and only in August, 1888, when I competed at the Co-operative Fête held at the Crystal Palace, London, I met him there by appointment. In his company I spent a pleasant time, and through his genial and kind disposition I made the acquaintance of many of the leading bee-men, who, but for him, would have still remained unknown to me. His removal will be lamented by a wide circle of friends, and especially those who were more intimately connected with him.—JOHN D. MCNALLY.

HOUSE APIARIES.

[20.] Since I have been a reader of the *B. B. J.* I have looked in vain for hints, help, or information in the matter of house apiaries. Are they unpopular, or are the majority of bee-keepers in too small a way to require them? A page or two of illustrations and hints would, I think, be of greater interest and service to advancing bee-keepers than such poor twaddle as 'Sam Goodheeve' has taken the trouble to write. We look for sound sense, the fruit of zealous search and toil, in the *B. B. J.*, not column after column of dry-as-dust Sussex brogue.

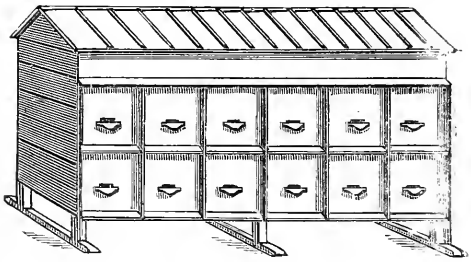
The advantages of having a large number of hives under one roof are many. Dryness, ease of manipulation at all times, the simple Cowan body-box instead of the several parts of the out-door hive, less danger of attracting robbers, and no inconvenience from wind during examination. Section crates and frames can be prepared and stored on the spot, appliances kept handy, honey taken, and extracting done, all under the same roof—aye, and the scores of other little jobs attended to without running about in the garden among the flying bees.

Add to these the advantage of being able to winter without chaff, cork dust, or any other extras beyond a good thick quilt, and we must conclude anyhow that bee-rooms or houses are managed easier, quicker, and therefore with much less labour, than hives out and about. The objection raised by some of the close proximity of the entrances might be got over, perhaps, by arranging the hives on separate stands, and placing the entrances some distance apart to prevent robbing to any extent. Of course, if robbers are about they will enter hives close or far apart, as most of us know. Although my hives are three and four feet apart, and some more than that, all during this autumn robbing has gone on in a small way. Strong colonies are the surest safeguard against robbers, and perhaps the only safeguard.

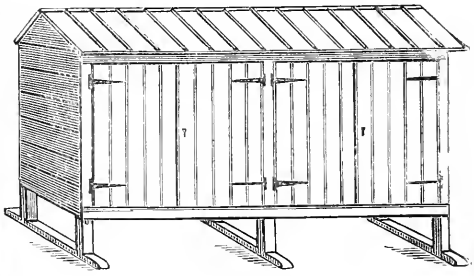
I should like to know if the 'Patent Wire-wove Waterproof Roofing' has been tried by any of your readers. If it is semi-transparent, non-conducting, indestructible, and cheap, we should find in it just what is wanted.

I hope, Mr. Editor, you will allow a discussion to be carried on on this subject of house apiaries in your valuable *Journal*, and help us yourself all you can. We shall value all and any suggestions you make, and turn to good account all that is possible.—F. G., *Methwold, Norfolk.*

[Formerly a good deal was said about house apiaries, but these have not met with much favour, and bee-keepers, as a rule, are in favour of having each hive on a separate stand, being less troublesome to manipulate. A great many have used bee-houses and have given them up. In America they have been quite extensively used, and some bee-keepers still use them. In Germany they are almost universally used, but German hives are worked on a different principle. We worked successfully an apiary of forty hives, all of



Front view.



Back view.

which we kept in lofts over our stables. There was a stand at each window, and two hives were placed on the stand. In this way the hives can be placed far enough apart, but being so high a great many bees were blown down by the wind, and never reached their homes. We, however, were most successful with them, and although the bees were in single-walled Cowan hives, very little packing was required. It is not, however, every one who has such a place ready to hand, but any one who has could with advantage utilise it. The late Rev. G. Raynor was a great advocate of bee-houses, and had one in use, holding about twelve hives, to the day of his death. We give in our illustrations front and back views of Mr. Raynor's bee-house. We shall be pleased to allow a discussion, and to have the experience of those who have used bee-houses.—ED.]

EARLY BEE FLIGHT.

[21.] It was on the first day of the new year that the first flower of the season, a yellow aconite bud, peeping out of the moist earth, caught my eyes.

On the 11th the bees took their first airing, and when out on the 12th, in the warm sunshine, I heard a familiar hum about a tall Scotch fir-tree, which was all covered with ivy to the top. There, sure enough, the bees were busy on the flower clusters of that 'rare old plant.' On close examination it seemed that many of the blooms were only just coming out. Is this not unusual in January instead of in October? The bees were not carrying pollen.—A. WATKINS, *Hereford.*

[On the same day we noticed the same peculiarity as regards the ivy bloom. We do not recollect noticing a similar show of bloom.—ED.]

A NATIONAL HONEY COMPETITION WANTED.

[22.] Of late years few industries have made more rapid progress, or increase in numbers, than that of bee-keeping. While it is to be regretted that annually we lose men such as the Rev. G. Raynor, W. Raitt, G. Henderson, and others well known in the bee-world, at the same time our ranks are ever increasing and being refilled with recruits. Those of us who in former days were fortunate enough to win prizes at honey competitions or shows, know how encouraging it is for young hands to take similar honours. Many beginners at the present time, though successful bee-keepers, and who, ten years ago, would have been able, and would not have hesitated, to enter the lists in honey competitions, will not compete. But what is the position of affairs now? In nearly all counties where these annual shows are held, there are one or two bee-keepers who, owning fifty or a hundred stocks each, practically hold the field, and when they enter the honey competitions, have it all their own way. Remarks are then made by these younger hands, viz., 'What is the use of competing with So-and-So, as he always carries away the prizes?' Consequently, they never think of entering.

Again, many of our show schedules are so arranged that the *cream* of the prizes are only fit to be taken by the large bee-keeper, the best prizes going for the largest quantities of honey. This may be in some measure correct, to award the best prizes to exhibits that require extra labour; but at the same time it favours the larger honey producer, to the discouragement of the smaller. It is at least gratifying to notice that this is now being remedied by classes being made at shows for exhibits of, say, a single section and a single jar of honey, thus enabling all who own a single stock of bees to compete alongside of those having a larger number.

A still greater evil, and one which has prompted me to write these lines, is that many of our honey shows are held at seasons only suited for the favoured few. They are too early. Take, for instance, the Royal Show now advertised in this *Journal*. In an ordinary season it is only those residing in early districts, or in the south of England, who are able to stage honey by the middle or end of June. In Scotland things are somewhat similar. The leading show here for some years has been the Caledonian Apiarian Society, held in connexion with the Highland Society's Show at the end of July. This is a very suitable time for raisers of clover honey, but it, also, excludes those living in late districts, having only the heather to depend on. However much good has resulted in the past to the cause by these annual shows, they are not now what they ought to be. The 'new-fangledness' is gone, and our younger members of the 'craft' stand aloof, on account of the foregoing and similar reasons. My opinion, therefore, is, that much good would result by having a national honey competition annually, suited for the whole of the United Kingdom, at a season when all could compete, and also where the bee-keeper owning a single stock of bees could stand on an equal footing alongside of those who count their stocks by the hundred. Lately, in this *Journal*, some of our Borgue brethren and others residing outside of that favoured region have been 'springing at each other's throats' anent the merits and demerits of Borgue honey, and no doubt the bee-keepers of that quarter would hail with satisfaction the prospect of a national competition, so as to enable them to practically establish their reputation. Having thus ventured to suggest that a national competition is necessary, permit me to point out briefly how I consider this may be accomplished so as to further the object in view, and also be a success financially. The British Bee-keepers' Association should take up the matter, and arrange for the competition to be held in London about the beginning of October—the classes to be all small exhibits, viz., one jar of clover, one jar of heather, and one jar of granulated honey, also one class for a single one-pound section; all jars and other outside appearances of exhibits to be exactly similar, so as to prevent any unfairness or suspicion. Competitors could then send their exhibits to London at little expense. The B. B. K. A. could arrange for the judging of the honey at one of their ordinary meetings. Liberal prizes in each class would bring out competition. A small entrance-fee for each exhibit, and no restrictions placed on exhibitors staging but one entry, would possibly raise the necessary prize-money. But in addition to this the exhibits could be handed over to the B. B. K. A. for disposal, which would increase the necessary funds, and also save the trouble of returning them again. Another way might be suggested, but which would entail a greater risk, viz., to have the competition, say, in the North of England, and induce bee-keepers from all parts to attend on that occasion, and thus have a grand National Show. These remarks, hurriedly written, are open to correction, and I shall be pleased to hear the opinions of others on the above subject.—WM. MCNALLY, *Harrington.*

REPORT FROM SOUTH NOTTS.

[23.] The last was my third season in bee-keeping, and was a fairly successful one. Three hives yielded me an average of 50 lbs. a-piece. Clover is our mainstay, helped considerably by fruit-honey and limes. There is no heather in the district.

This oppressively mild weather is playing havoc with the stores. Already I have had to resort to candy, although in autumn the brood-chamber was well supplied.

Aconites, snowdrops, and here and there a crocus, are in bloom. Strange to say, the bees do not work the *Chimonanthus fragrans*, which is flowering freely. Too sweet for them probably.—W. M. Bird. *Thrumpton, S. Notts.*

EXPERIENCES.

[24.] Having read the *B.B.J.* for a number of years, I have often felt constrained to contribute a few lines, not in order to air my own views, but rather by way of having a 'dig' at some of your correspondents, who give what, to my mind, is very ill-advised advice, *i.e.*, amongst many others, the very frequent one in spring of urging novices to feed! feed!! without any qualification as to whether or not the hives really require feeding. Another point I notice in 'Useful Hints,' January 2nd, viz., 'Entrances should be kept at full summer width,' and in almost the next paragraph, 'beware of mice.' Now, if any bee-keeper whose hives have entrances about half an inch deep, as all mine have, wishes to follow this 'hint' successfully, I should think he would find it necessary to squat down with his hives ranged about him to prevent Miss Mouse effecting an entrance.

If you will spare space now that I am writing, I would say that I have kept bees for the last ten years or so, and could give many 'experiences' of that time. One only will I recite. Two or three years after I had begun to keep bees I read Pettigrew's *Handy-book of Bees*, and forthwith resolved to go in for flat-topped straw skeps. I worked up six beauties, I think they were eighteen inches in diameter, full of fine straight combs, and at the close of the clover harvest made up my mind to remove them to the Island of Arran for the heather. They were so full of bees I had to rise about daybreak and close the entrances by literally shoving the bees in. I had read that there were usually mishaps on a first journey to the moors, and, on preparing them the night before, had even had the story told me of the minister's wife, going to sell a cow, who, on returning, after having made a bad bargain, remarked that if she had not the value, she had the experience. This turned out to be exactly my experience.

I started full of hope, but my misfortunes soon began. When on the steamboat I had arranged the hives on a nice airy place, and thought them so far safe. A great lump of a girl evidently mistook them for so many seats, and flopped right down on the top of one. Needless to say, that one soon showed honey trickling out. To make a long story shorter, when I had arranged them on their 'stances,' and proceeded to examine by lifting the hives, I was reminded of a person lifting so many inverted jam-pots, and leaving the jam standing. The only one saved was a Stewarton, with a straw super on the top. The heather harvest turned out a failure that year, but this hive somehow managed to complete the super, which weighed 34 lbs.

Other bee-keepers said this was the only honey on the island, and that my bees must have stolen it from their hives. As for that, I do not know; perhaps they saved it from the wreck of the other hives.

After that I went in for Stewarton hives principally: but having made a frame hive, and preferring the latter both for method of working and for results, I have gradually allowed the frame hive to supersede all others, and now have nothing else. I have them with the frames at right angles to, and also parallel with, the entrance; the latter I prefer. My hives are all double-walled, with air-space, and on the top of frames I place from 1-inch to 1½-inch depth of porous material, such as carpeting. With this for winter protection, I find they appear almost as strong in spring as when packed for winter. I omitted to mention that I make a point of cutting winter passages in the combs.

In autumn I reduce the frames to eight or nine, and give sufficient food to last until May, closing the entrances all but an opening about 1½ × ¼-inch. I never disturb them until April is well in; indeed, it is sometimes well on in May before I get an opportunity of overhauling some of them. By the middle of June, when our only honey flow begins, I have returned frames, making the number up to ten, or sometimes eleven frames. I then lay a piece of perforated zinc right on top of frames, and have no difficulty in getting the bees to pass through. Formerly I had a large number of sections spoiled with brood, but now not one. When the first crate of section is properly started, I add a second, and later a third.

In the year 1887 I took 150 lbs. from one hive; and the average for ten hives was, I think, 89 lbs., although I have not the exact figures before me.

The season 1888 was very unfavourable here as elsewhere, but notwithstanding I managed to clear a 5*l.* note: and last season, again, 1889, I will have not short of 20*l.* clear from the same ten hives. All from the clover only.

I have never lost a hive during winter; and in only two instances do I remember having to unite hives in spring owing to the queens having died. I always study to have queens of not over three years, and often replace two-year-old queens if I have younger ones to spare.

I leave your readers to form their own opinion of my method of conducting my apiary, but I have yet to learn of any other by which, out of business hours, better average results can be obtained.—Henry D. Blackwood, *Kilmarnock, January 6th*, 1890.

[25.] IN THE HUT.

'His life was gentle; and the elements
So mixed in him, that Nature might stand up
And say to all the world, "This was a man!"'
SHAKESPEARE.

So say all bee-keepers who had acquaintance with the late Mr. George Henderson, without fear and without reproach, and 'X-Tractor,' more than many, has cause to feel the loss of a dear friend; for, on all occasions on which I visited noteworthy apiaries and described them in your columns, he, whom I playfully dubbed 'The Sage,' was my companion and cicerone. Words of wisdom and erudite utterances were his conversation, savoured with gleams of quaint, dry Scottish humour, and pithy quotations from the Greek and Roman classics. So devoted was he to work, that immediately we took our seats in a train for a Saturday afternoon trip, he would pull out a bundle of correspondents' queries, which we would divide and discuss preparatory to their appearing in your 'answers.'

Debates on dead bees, post-mortem examinations conducted in solemn undertones, many times provoked inquisitorial glances from fellow-passengers, the memory of which now provokes but sad smiles. I would like Mr. W. H. Harris to call to mind the puns and puzzles, the gibes and jests exchanged in several languages on the occasion of our visit to the late Rev. G. Raynor. *Eheu, fugaces,* as the Sage himself would say.

And now let me express the satisfaction I feel—which will be shared by all the craft, I am sure—at the happy turn events have taken in fusing together our two (nay, three) bee papers; we want nothing in direction as to bee-keeping in this country which cannot be supplied by the collaboration of the present editors of the *B B. J. and Record.* The change, too, in size of the *Journal* is a distinct improvement; it is handier and 'fatter'—more Dutch-built, so to speak—and starts on its new year's voyage under a happy augury.

Bees are having a bad time of it just now by reason of the mild spring-like weather. Last Sunday (January 5th) all hives were turning out in a cleansing flight, which, alas! reminded one forcibly of an ephemeral dance of death; the ground was dotted everywhere with dead and dying bees the next day. We feel much tempted to peep under quilts and see how stores are lasting; but this mustn't be, for, knowing they had plenty when put up for winter, our bees are going to be left severely alone for more than a month yet, this being the least of two evils; there is a risk, and it shall be run in remembrance of past penalties paid for too early meddling. Some people will take off hive covers, and let the sun shine on and dry quilts on tops of frames. This is not done near the hut, for the warmth would bring out bees we wish to 'still live on.' After all, may not this excessive mortality be a clearing out of old bees, worn out and not fitted to survive, a useless mass of effete consumers of stores? Let us, perhaps delusively, take a philosophic heart of grace, and consolve ourselves with the idea that there is all the more honey remaining for the survivors.

In these days of epidemic, followed by inflammation of the lungs, I would ask your readers to be liberal in their use of honey: a teaspoonful of honey on rising, followed by a teacupful of hot water while dressing, will be found of service in any tendency to bronchitis and asthma, loosening the mucus in the air-passages, clearing the stomach in dyspepsia, and removing sluggish action in the bowels. While on the subject of honey as medicine, I may add my little bit of evidence in favour of bee-stings as a cure for rheumatism (or its children: sciatica, lumbago, neuralgia). Before I became a bee-keeper I used to suffer intensely and almost incessantly from rheumatism, the result of sleeping with my head on a damp pillow-case in bonnie Scotland (damp, bonnie Scotland); afterwards, bee-stings happening with their usual regularity, rheumatism and its attendants gradually vanished, the final *quietus* being given by a great stinging operation, the result of a mishap in hiving a swarm. Some years ago an acquaintance of mine had several times to undergo a painful operation in order to obtain relief in sciatica. An instrument, containing many needle-points, pressed these simultaneously into the flesh over the seat of pain; many may say the remedy of much stinging would be worse than the disease, forgetting that in acute pain such punctures on any particular part would be nearly painless. People who have sciatica find the pain so agonising that a few stings would go for nothing.

I hope we shall soon see some jottings again from our old friend, 'Amateur Expert:'—

'At whose sight all the *bees*
Hide their diminish'd *tails.*'
MILTON (*parodied*).

The foreseeing bee-keeper will take care, now we are in the quiet obscurity of winter, to clear such entrances from dead bees as need that attention, suspecting such hives as do not send our bees on mild days—a look round once a week will do; he will also scrape up and clean up all his spare appliances, melt wax, make such appliances as he can, and get from the maker such as he wants when everything, as now, is cheapest—much cheaper than we shall find them in 1890, unless I am much mistaken. The maker is now at his slackest, and you can get goods in January which all the upbraidings and telegrams in the world won't fetch in June and July. A good dig up and rake over of the ashes or cinders in front of hives will at this season expose the seeds of grass and weeds to the bursting, destroying action of moisture and frost, always supposing winter's snows are yet before us:—

'O'er us
Drift grey, fleecy clouds.
As the young year's days will lengthen,
So the steel-blue nights will strengthen
Jack Frost's grip.'

X-TRACTOR.

WINTER AIR-SPACE UNDER FRAMES.

[26.] From sundry inquirers at times come complaints of lack of information as to failures in trying *suggestions* (or *private whims*) given in our *Journal*. My experience of the above for the four winters to date is in favour of more air-space than usual in spring or autumn. Each winter I have one or more hives mounted clear of the floor-board either with a raiser or section-crate, the latter again raised to allow bee-space at the front. I have two hives this winter lifted up $2\frac{1}{2}$ in. from floor-board, with front openings $14\frac{1}{2} \times 1$ in. deep, protected by a bridge to keep packing clear of entrance, as I simply use in these two hives a loose makeshift pattern ten-frame hive, with 2-in. space all round, packed in winter with sugar bags, having the outer case of $\frac{1}{2}$-in. wood. The top cover will close down completely if required, giving two $\frac{1}{2}$-in. thicknesses of wood, 2-in. space sack packing, then the hive proper of $\frac{5}{8}$-in. wood. From these two hives I have little or no loss in bee-life. Sunday, January 5th, was remarkably mild here, and also a short time before. The bees flew strongly, but great numbers were down on the breeze and grass from three hives, with the usual space under frames. My bees are bright Ligurians, some with a touch of black, although it is six years since I had a black queen, but they are round here. A flat straw-frame circular hive, not many down: a common dome straw in same shed, thousands (a swarm, as the bees died out in spring of 1889): a long, Anglo-German warm frame, half-dozen down; three other warm frame hives had them down in great numbers. All had shade-boards against rain or wind, removed if warm and still. This death-rate has been the same, more or less, each of the four winters to date, therefore leading me to think that greater air-space (or bottom ventilation) is better for winter below the cluster. The outside entrance of one hive is $6 \times \frac{1}{4}$ in., the other blocked to $1 \times \frac{1}{2}$ in., all thickly packed and weighted: American cloth next frame, six woollen, *one straw crown 1 in. thick*, one wood crown $\frac{1}{2}$ in. thick, weighted.

Some one may say, 'If then so very good, why not make all the same?' For this reason, they are not so convenient, either packed walls or dead air-space interfere, but shall try for winter of 1890. The Turkish bath is ventilated in the floor, if properly constructed, to let off the heavy gas, so why not benefit the poor bees? Mr. Cowan strongly recommends this plan, I believe.

I wish well to the *British Bee Journal*, and trust it will ever be a good guide to the seeker, but I am not adjusted to the alteration yet. —W. G. RASTRICK.

Wisdom is the aggregate of human experience: so by putting our experiences together we bee-keepers may become as wise as the little insects we patronise.—*Paxton.*

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

CRUST.—Any of the close-sided section racks of the principal dealers are alike good. It would be invidious to name one in preference to the other. Be sure to use only dry, well-seasoned stuff. Do not hesitate to put any question that may arise.

J.—We appreciate your intentions, but we can assure you that no two gentlemen are more anxious for the general extension of bee-keeping and the free giving of useful information on the subject than the two you name. We value their acquaintance highly, which we could not do if your inference was correct.

NEW BEGINNER.—This depends much on the district and the honey flow. Where close attention can be given to the requirements of the stocks, the shallow frames, $4\frac{1}{4}$ inches deep, will be found useful, as they will be sooner filled and capped for extracting. If there is any doubt that the bees may go short of attention for a time, then use the ordinary frames above the brood-nest. So much depends upon the capabilities of a district, and the time and opportunities at the disposal of the bee-keeper. See letter 14 in our last issue.

A YOUNG BEE-KEEPER.—It would be best to remove one of the queens. It would save 'remarks' between the rivals. There would also be less fear of the swarms rising again.

R. EVANS.—See reply on page 12 to 'Lincolnshire Novice.' Your honey has fermented.

HONEYTOWN.—The sample of candy sent is overboiled. What sugar did you use, as it deliquesces very easily?

J. W. MORRIS.—Raynor's Extractor requires no special treatment to secure good results. There is no book published on the mode of using it. By the 'inside wire' we understand you to mean the wire cage in which the frame is placed. If this is properly soldered it will not break out. A good tinsmith would soon make yours sound. Possibly you turn much too fast: this would greatly increase the strain on it.

W. MORRIS.—You cannot do better than sow borage. *Limnanthes Douglassi*, mignonette, phacelia, wallflowers, and *Arabis alpina*.

LANCASHIRE BEE-KEEPERS' ASSOCIATION.—At a Committee Meeting held at Leicester on Saturday, January 18th, it was decided to postpone the Annual Meeting, usually held the last Saturday in January, till the first Saturday in March, in consequence of the illness of the Secretary, and that an effort should be made to have an attractive meeting, consisting of practical papers, &c., on modern bee-keeping.

THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

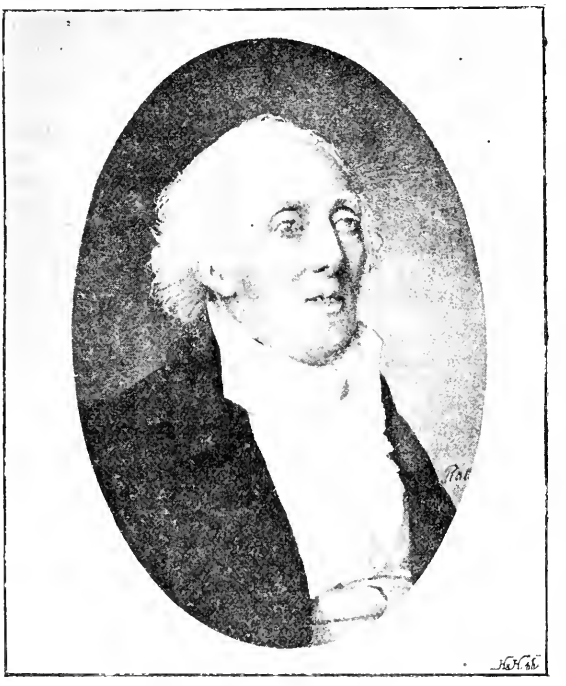
No. 397. Vol. XVIII. N.S. 5.] JANUARY 30, 1890. [*Published Weekly.*

Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 21.—FRANÇOIS HUBER.

We were recently reminded that we had not given a sketch of one of the greatest of bee-keepers. Our sketches of eminent bee-keepers would indeed be incomplete were we to leave out the biography of F. Huber, to whom bee-keepers owe such a debt of gratitude, and who stands in such a prominent position in connexion with apiarian science. His success in discovery, notwithstanding his blindness, was proportioned to his intelligence and acuteness. Many before and since his time have written, and written well, on bees, and have added more or less to our knowledge of what has been a fascinating subject of investigation for generations: but none have displayed so much knowledge, or patient perseverance and accuracy of experiment, as Huber, even allowing for a few errors of minor importance found by later investigators.



FRANÇOIS HUBER.

François Huber was born at Geneva, in Switzerland, on the 2nd July, 1750, and inherited a taste for natural science from his father, and even in his younger days he pursued his studies with such intense ardour as to materially injure his health, and which sowed the seeds of weakness, impairing his sight, and which eventually ended in total blindness. The admiration he had for the writings of Reaumur, and his acquaintance with the celebrated naturalist, C. Bonnet, led him to the study of the habits and economy of the honey-bee. Bonnet soon discerned the intelligence and penetration of his young friend, and kindly encouraged him in his peculiar researches.

Huber's blindness must have presented a very serious obstacle to the successful study of his favourite pursuit. It must also have had the effect of throwing considerable doubt on the accuracy of his experiments and the reality of his discoveries. His most ardent admirers are bound to acknowledge that his observations, reported as they were through a deputy, and depending for their accuracy on the intelligence and fidelity of a half-educated assistant, were of themselves not entitled to be received without caution and distrust. François Burnem, a native of the Canton de Vaud, his assistant, had no doubt special abilities, for he entered with enthusiasm into his master's work, and appears to have carried out the experiments with the most patient assiduity, although he did not possess those acquired accomplishments which serve to develop the intellectual faculties, and fit the mind for observing with correctness. Huber had taken great pains to instruct and accustom him to rigorous accuracy in his observations. At a later period Huber was deprived of his

assistance, but the loss was more than compensated by the assistance and co-operation of his son, P. Huber, who is well known in connexion with his *Researches Concerning the Habits of Ants.*

There can be no doubt as to the value of Huber's discoveries, more especially those that have been repeatedly confirmed and verified by subsequent observers. His discoveries respecting the impregnation of the queen-bee, the consequences of retarded impregnation, the confirmation of Schirark's discovery of the power possessed by the worker-bees of converting a worker-larva into a queen (never definitely known or credited until his decisive experiments), the origin of wax and the nature of propolis, the method of constructing combs and cells, and of ventilating hives, have been frequently verified. His leaf-hive and observatory have served as types and patterns for our modern hives.

In 1792 he published his *Nouvelles Observations sur les Abeilles,* in the form of letters addressed to his friend, C. Bonnet. In 1814 a second edition was published in Paris in two volumes, and included the results of additional researches on the same subject. This was edited in part by his son, P. Huber. An English translation appeared in 1806, and another in 1821, which included not only the original work of 1792, but also the several additions contained in the 1814 edition. This work was also published in German and other languages, and has been the recognised standard book on the subject. In the later editions many observations on the Death's Head Moth are made, and the precautions taken by the bees to guard themselves against the encroachments of these creatures.

The portrait which we give is from a photograph which was prepared for and presented to us by his grandson, M. de Molin, of Lausanne, and is taken from a miniature belonging to his family. It is hardly within our province to describe Huber's personal character and domestic circumstances; but there are some features in his disposition and some circumstances in his personal history, told us by his grandson, which appear so well worth our attention that we cannot forego this opportunity of mentioning some of them. His manners were mild and amiable, as is frequently the case with those who are blind; his conversation animated and interesting. His friends tried to persuade him to have an operation performed on one of his eyes, which seemed to be affected only by a simple cataract, but he declined the proposal, and bore his sad loss without a murmur.

He married Maria Aimée Lullin, who was spared to share his labours for forty years. Owing to his infirmity, the engagement was opposed by the lady's father, although the attachment had begun in early youth. Her affection and devotion for him grew in proportion to his infirmity, and when she was of age to marry she decided to do so, declaring that as now he required the constant attendance of a person who loved him, nothing should prevent her from becoming his wife. The union was a happy one, and their mutual good conduct soon brought a reconciliation with the father. To Huber she was as 'eyes to the blind,' his secretary, writer, and sharer in his enthusiasm and love of bees. He retired to Lausanne in the last days of his life, where he had the affectionate attention of his married daughter, Madame de Molin. About this time he learned the existence of Mexican bees without stings, and he was soon after gratified with the present of a hive of that species. His feeling towards his bees was not a feeling of fondness in an ordinary degree, it was a passion, as it almost invariably becomes with every one who makes them his study.

He died on the 22nd of December, 1831, in the eighty-first year of his age, and to the last he was in full possession of his mental faculties, and was able to converse with his friends with ease and tranquility, and even to correspond by letter with those at a distance within two days of his death. So long as bee-keeping is carried on, the name of Huber will stand out in letters of gold, and proclaim him as one of the greatest discoverers in connexion with science of the present century.

ASSIST THE IMPULSE.

Believing, as we do, that a spreading of intelligent bee-keeping would be beneficial to the country generally, we now propose to give a few suggestions which may tend to help us towards the end we have in view. Some have suggested that a general spread of bee-keeping would be disadvantageous for several reasons, but principally because it would tend to bring about such a glut in the market that it would cease to be a profit-making occupation. Seeing that there is not the slightest possibility of such a state of things, for very many years at any rate, we may at once dismiss this suggestion from our calculations. In this country, at least, owing to the philanthropic efforts of the British Bee-keepers' Association, the modern system of bee-keeping has made great headway, and that at an exceedingly small cost. All honour to those—and they have not been few—who have considered it as a favour to appear as the honorary representatives of the Association in districts where knowledge on the subject was required. These gentlemen have spared neither time nor expense to do their best to teach others the better way in bee-keeping. Now that affiliated associations have come into existence in nearly every county, there is less strain upon the members of the Committee of the British Bee-keepers' Association than was the case in the earlier days of the movement.

Do the county associations assist the impulse as they ought? is a question we are led to consider on perusing the letter of our correspondent, Mr. Richmond (29).

We are inclined to think there is considerable room for improvement in this respect. Take our correspondent's case. A working man,

whose income is measured by so many shillings a-week, thinks, and rightly too, that he can add to his income by keeping bees on the new (to him) method. He hears of the County Association, and finds that they will accept him as a member for a yearly subscription of half-a-crown. The beginner joins, and, naturally enough, expects his *quid pro quo* in the shape of instruction. Our correspondent appears to have failed in obtaining this for *two years in succession*. We are compelled to ask, Why was this? Was it because of the smallness of his contribution? Then, the blame, if any, attaches to the Association itself for offering to receive members at such a low rate. Perhaps we may be told that this village, of which personally we have no knowledge, is some out-of-the way place to which it is highly inconvenient to send the expert. Possibly this is so. We notice our correspondent says that on each occasion he *took* the money and got his receipt. He must, therefore, have been within reach of some official representative of the Association, and should at least have had the offer of assistance. We have now referred to this particular case sufficiently, and prefer to look at the general bearings. Are the existing associations sufficiently careful to avoid selecting *drones* in place of workers? Do they ever allow position to outweigh experience in the appointment of secretaries and district secretaries?

While living a country life it has been our privilege to associate with all classes, and we have invariably found the *bonâ-fide* working man the most difficult to get at, if he once became possessed of the idea that you were patronising him. Somehow there is that in his nature which makes him suspicious of the good intentions of the 'gent.' Let the same man 'foregather' with a genial, open-hearted person, who does not endeavour to treat the working man as a child, and he will not only willingly receive all information and assistance offered, but immediately ask for more. Thus the impulse is assisted. Suppose an association to have only one subscriber in a village, they cannot afford to let that single individual go unvisited for a whole year, if they wish to prosper and increase their numbers and influence. They must assist the impulse, let it be ever so weak. It may be that several are waiting to see how the one subscriber is helped by the Association before joining also. Where the expert enters into his work *con amore*, much good results. We have in mind a district where foul-broody stocks were the rule rather than the exception, and where the subscribers had decreased, owing to the 'gentleman' who received the subscriptions reporting that he could manage without the visits of the expert. Better counsels have, however, prevailed, and the result is that the subscribers have about quadrupled, while foul-brood is nearly a thing of the past.

Considering the large number of bee-keepers in this country, we must confess to considerable surprise at the small number who present themselves during the year for experts' certificates. Depend upon it that it is to the interest of a district to encourage residents in such district to compete for such certificates. They are no empty honour; they are only granted as a result of the candidate satisfying the examiner that the subject is thoroughly understood to the extent for which the certificate is given. Encouragement might be given locally, in the shape of a small money prize to each successful candidate. To many a day's pay is a matter of considerable importance, in exchange for which a certificate is but a poor recompense, and it is not every employer who will give a man a day's pay while absent for examination. Of course, we would prefer to see third-class experts proceed to the second and first-class examinations, but we are aware of many circumstances which would militate against this. Much assistance would be given to the impulse were there a considerable increase in third-class experts alone, and we commend the matter to the careful attention of those who are in a position to put the suggestion to a practical test during the coming season.

Never, under any circumstances, despise small beginnings, for as a very heavy weight suspended by a cord may, though barely moving, have its oscillation increased to the greatest degree by even a delicate thread if the impulse is assisted, so may our single subscriber be nurtured into a strong bee-club, providing we assist the impulse wisely.

Associations.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

At a Committee Meeting held at Leicester on Saturday, January 18th, it was decided to postpone the Annual Meeting, usually held the last Saturday in January, till the first Saturday in March, in consequence of the illness of the Secretary, and that an effort should be made to have an attractive meeting, consisting of practical papers, &c., on modern bee-keeping.

NOTTINGHAMSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual General Meeting of this Association will be held on Saturday next, Feb. 1st, at the 'People's Hall,' Heathcote Street, Nottingham. The chair will be taken by Viscount St. Vincent at 3.30 p.m. A knife-and-fork tea will be provided at 4.30. Tickets to be obtained of the Hon. Sec., Mr. A. G. Pugh, Mona Street, Beeston. A social evening and prize-drawing are to follow.

To Whiten Beeswax, boil the wax, after it is strained, for one hour in plenty of water, to which a few drops of chloride of soda have been added. When the wax is quite cold, remove it into the open air to dry and whiten.

Extracts.

DISPOSING OF THE HONEY CROP.

A Yankee got up a placard for his saleable honey, which read like this: 'Hot rolls and honey will draw human flies.' This he placed up over an attractive display of honey, where it was kept for sale. It was put up in the nicest shape, each package was done up in white tissue paper, and put in 'cartons,' having nice labels printed in two colours, and little string handles, all ready to be purchased and taken home safely as well as conveniently. He never had a surplus crop of honey left on his hands! The cry always was for more—no matter how much was produced.—*A. B. Journal.*

CAN THE AVERAGE FARMER MAKE BEE-KEEPING PAY?

Had the question been asked, 'Will it pay the majority of farmers to keep bees?' I should answer, 'No.' But assuming that the majority of farmers are partially composed of the 'average farmer,' then the assertion should be qualified.

The farmer who 'can't afford' comfortable quarters for his stock, and can only afford to have wood enough ahead to last overnight, and who sits around the cook-stove during these long winter evenings, his knees forming a rest for his elbows, and his hands for his chin—who 'can't afford' to take a paper, or furnish a lamp to read it by (should his more enterprising neighbour lend him one)—the farmer who 'can't afford' to have a stove and a good lamp in his best room, where his children can invite their mates and spend their evenings in pleasure and profit, but who can afford to see them go to the 'Centre' every night, and see the marks of dissipation become more plain on their fair faces daily, but who enjoy hearing their neighbours say, 'The carpet in their best room looks as good as new,' when the facts are, it was bought twenty years ago—my friends, there are such localities, and where the majority of farmers are comfortably well off, and are considered the average, or a little above the average farmer—in these localities it will not pay the average farmer to keep bees. It is very gratifying, however, to observe that these localities are growing beautifully less.

In other localities, where the 'average farmer' comprises those who by thrift, energy, and enterprise have good provisions for their families and stock, who make the most of everything, and know how to market their products to the best advantage, being posted through the mediumship of the best periodicals representing his industries—these farmers, should they have the natural inclination, will make bee-keeping pay, for the reason that they will give it the same proportionate attention that they give their other rural industries. Instead of sitting around the cook-stove, and complaining of the hard times, and the bad laws that hamper them and destroy their bright, intelligent boys, that they have been hoping would in the near future relieve them of some of their imaginary hardships, they are just taking comfort, making beehives, and getting everything in readiness for the coming busy season.

Bee-keeping has passed its 'luck period,' and is now an established science. But still the past three seasons have proven that it is not the specialist that has produced the honey, or made the best bargains on what he did produce. My 250 colonies in two yards have not averaged to exceed 16 lbs. each, but have required about the same attention that they would had they produced 60 lbs. each—as those not to exceed five miles away did with about the same pasturage, but only four or five in a place. With a good season, of course the scales would be turned.

But many of us are feeling that these good seasons are the exception and not the rule. Bee-keeping is a rural industry, and to the intelligent, wide-awake farmer it belongs, and in it he will succeed. If this is the 'average farmer,' then it will pay him to keep bees; but if, on the other hand, he belongs to the class first described, bee-keeping, like everything else he does, will not pay.—Geo. E. Hilton.—*American Bee Journal.*

THINGS THAT MAY BE MIXED WITH BEE-KEEPING.

Above most other rural pursuits, bee-keeping requires promptness in attention, therefore, any other kind of business to be associated with it to advantage must be flexible in its requirements, or, at least, if promptness in giving it attention is at any time very important, it should be at a time when the bees require no special care. For example, the raising of small fruits, which is often recommended as a desirable business to combine with bee-keeping, is to my mind, if it is to be carried on at all extensively, ill adapted to that purpose: for the obvious reason that the picking of the fruit, which cannot be delayed, comes on just when the demands of the bees are the most exacting.

First, then, let this point of interference be studiously considered; and let every occupation where the objection holds be rigorously rejected. Any neglect here will inevitably induce overwork, ill-temper, loss, and disappointment.

Next, a very desirable thing in the business to be united with bee-keeping, if it requires attention at all at the same time as the bees, is that it be capable of being carried on hard by the apiary; so that while one is receiving attention the operator may at the same time survey the other also.

And, after all this, the proper choice will depend largely upon one's tastes and circumstances. Every one must ask himself what he would like best, and, in his situation, what do convenient markets demand?

For myself I know of nothing I should be more inclined to take up than the cultivation of

grapes. There is always a demand for well-grown grapes, and with a judicious choice of varieties, and proper cultivation and dressing, they are generally a reliable crop. The attention the vines require need not be very exact as regards time, except, perhaps, the gathering of the fruit when there is apprehension of frost, and *that* would almost always be when the bees would require little or no attention if, previous to that time, the bees had been properly handled. To one favourably located, either the growing of plums, pears, or quinces would be a pleasant and might be made a profitable employment, and neither would materially conflict with any attention required by the apiary, provided that neither occupation be allowed to become too extensive.

An apple orchard, also, would stand in much the same relation to bee-keeping as the vinery, and with wise selection and proper care should yield a substantial and pretty reliable income. As an adjunct to the orchard, a few hogs could be kept, and the two would be of great mutual advantage.

Poultry would, no doubt, answer for some, but when one increases the number of such stock beyond forty or fifty, he must be exceptionally well situated, or of decided ability in some respect, or failure will be probable. A cautious advance in the poultry business may prevent much disappointment.

Farming and bee-keeping are loudly recommended by some as well adapted to be prosecuted in conjunction, but I think them very poorly adapted for that purpose. There is constant interference. The incompatibility is so great that they cannot properly be said to be capable of union. In practice each must remain a separate business. Nevertheless, there are branches of farming that may well be selected, the one to be chosen depending upon one's situation and circumstances. If the apiary were not very large a small dairy would answer for some. The production of vegetables or flowers would be suitable for others.

But it is of little use to enumerate, for, after all, every one must make his own choice; little more than general principles can be laid down in an article on this subject.

Thus much touching the months during which the bees must receive more or less attention, after which there remain five or six months that any one not largely engaged in bee-keeping may devote to any work appropriate to the season which he may choose. It may be anything from school teaching to wood chopping; little can be done, however, by a stranger in the way of giving valuable advice.

I think I may safely say, in concluding, that the great majority of those who undertake to associate any other business with bee-keeping will soon find a growing desire for an increase of the one and a decrease of the other, and after a little there will either be a demand for more hives and foundation, or an offer to sell a lot of empty hives and moth-eaten combs.—R. L. Taylor.—*Bee-keepers' Guide.*

THE UPS AND DOWNS IN BEE-KEEPING.

Those who are thinking of taking up bee-keeping as a sole or partial means of living should do so with the idea fully fixed in their minds to give to it as much study, pluck, and perseverance as they would to any other business; to stick to it through thick and thin, through flush harvests and poor yields, good and low prices—in fact, put up with and take in as one of the inevitables whatever it may be their lot to meet with. It was in my own case principally all 'down' that I found for several years as a bee-keeper, costly experiments, foolish theories, pet ideas, and discouragements because I did not succeed.

We get so we know how to produce a fine crop of honey, even in seemingly unfavourable years; we congratulate ourselves that this year we will get well paid for our work, when, lo! we stub our feet against something, and go sprawling in the dust. We get up, and look around to see what it was that tripped us, and find that some one who also has honey to sell has an empty flour-bin at home, and must raise the cash; or one who only keeps bees as a small side issue, and what little can be gotten from the sale of honey is so much gained regardless of its price; or another who is afraid the world is going to be drowned in honey, and he must unload for fear he can't a little later on: whatever the cause, the root that tripped us this time was the low price of honey, away below what we can take and live at it. And this is one of the hardest 'downs' to get up from. But I have found that to walk around the trouble, wait, let most of the crop get hurried off—and what is saved sells better later on. Another pebble in our track is suspicion. To send out some of the very finest honey that ever was harvested, and then be accused of sugar-syrup or glucose, is a rub on the shins that we don't relish, but we get it. But honest work can push it out of the way finally.

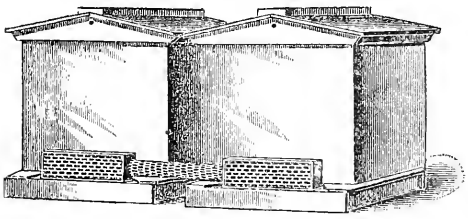
There is hard work, plenty of stings from vicious bees, bad years when we don't get enough to pay the interest on our investments, low prices and unfair competition, bad wintering, and so on, to make us discouraged; but to the one who makes up his mind to plod along, take advantage of everything that can be turned favourably, give his business his best efforts, and stay by it, there are many bright spots to look up to—good honey yields, fair prices, and good markets, conquering the winter problem, getting a good reputation, and the satisfaction of handing out something that you know to be wholesome and good, enjoying the sociability of your brother bee-keepers—all of these can be classed among the 'ups,' and taking it up one side and down the other, I, for one, have found the bright side of bee-keeping to be by far the largest creditor in the book of its accounts.—W. M. Kellogg.—*Bee-keepers' Guide.*

SWARM-HIVER.

Novel Self-hiving Arrangement for Bees.

I now bring before the bee-keeping public the device which is here illustrated and described. The arrangement is shown at the entrance of two beehives; if the upper chamber of the drone-trap is removed from two traps, and one each placed at the entrance of two beehives, and the two traps are connected by a passage-way formed by a tube made of perforated metal, one may get a good idea of this new device for hiving bees when they swarm.

The empty hive is placed at the side of the hive whose colony is expected to swarm, and the 'swarmer' fixed in position as shown in the accompanying illustration. When once in place



Self-hiving arrangement.

the bee-master can go about his business, whether fifty miles away or near the apiary; and he can rest assured that should the bees swarm during his absence, they will be self-hived, and all settled to work upon his return.

When a swarm issues the queen will be conducted to the new hive; the bees miss her, and, as is perfectly natural, will find her in the new hive, and readily join her. Should any bees on their return enter the home hive, they would gradually join the swarm in the new home. Does this last statement need confirming? Let me see if I cannot show that bees will do just as represented in the foregoing statement.

How many of us have known bees to swarm, and, losing their queen on the ground, return to the home hive? After awhile the queen would crawl up under the bottom-board of the hive, when the bees would join her, and at once commence to build comb there. I saw this very thing in May, 1889, in the apiary of Mr. L. E. Burnham, of Essex, Mass.

When the bees have found the queen, not one of them will enter the old home again.

I believe that this invention completes the last thing needed to make bee-keeping a success under nearly all conditions. The small bee-keeper, and all those who have business to take them away from home during the day, need not fear of losing their swarms, as each one when it issues will hive itself without the aid of any person.

The cost of the arrangement is about the same as one drone-trap. A patent has been applied for on it.—H. Alley.—*Apiculturist.*

THE NAMELESS BEE DISEASE.

During the present year a number of bee-keepers, representing widely separated localities, have reported in the bee journals the appearance among their bees of a trouble, by some called 'nameless bee disease,' and by others 'trembling disease.' From the reports it seems that the bees in all the cases reported were affected in the same manner, crawling about the entrance with a sort of trembling movement and quivering motion of the wings, which were often extended as though the bee desired to take wing. The affected bees had often a sort of shiny, greasy-like appearance, and moved about as though partly paralysed. The healthy bees in the colonies seemed very anxious to get rid of the sickly ones; several would often be pulling and working to get them off the alighting-board, and when pretty far gone they generally lay where they fell, but many crawled several feet from the hive before they expired.

In a colony of my own affected with this trouble the mortality was so great at one time as to raise quite a stench from the dead bees on the ground in front of the hive. This colony was affected early in the spring, and at first appeared only a case of spring dwindling; but instead of improving, the trouble grew worse as the season advanced, and was the worst about the first of September. The queen of this colony was one year old, and was a great layer, keeping the brood-combs well filled all the summer. No swarms issued, however, on account of so many bees dying off daily. About 40 lbs. of surplus was stored, and when I removed it numerous sickly bees were in the surplus boxes, and some dead ones here and there in empty cells. I tried no remedies for their cure, as I was waiting in expectation that nature would restore them to a healthy condition before the close of summer. In this hope I was disappointed, and fearing lest the disease might spread to the other hives, I 'sulphured' the sick colony about the middle of November. What the cause of the trouble may have been I am at a loss to know. It was the first and only case I have ever seen, and I hope it may not be a complaint that will spread. If it should prove a contagious malady it will be a source of discouragement to bee-keepers. All through the season there was a continued disturbance about the entrance as though there was *robbing*, but on a closer inspection it was clear that no robbers were present. I am inclined to think that this disease, whatever it may be, is incurable, though several persons report that they have found salt water sprinkled over the bees about the entrance to be a sure cure. Other bee-keepers say that the trouble is in the queen, and can only be cured by removing her, and giving a good queen in her stead. I think those who are competent to investigate on this line should seek out the cause and remedy of this obscure and nameless disease.—H. D. Stewart.—*Bee-keepers' Guide.*

Humour.

THE POETRY OF BEE-KEEPING.

Neighbour Smith is something of a wag. Neighbour Smith is also interested in bee-keeping. He has been in the habit of borrowing my bee papers to read. One of neighbour Smith's favourite maxims is, 'Never buy anything you can borrow.' Another is, 'What's the use of having friends if you don't use them.'

Neighbour Smith brought home the borrowed papers the other evening. That was in violation of another of his favourite sayings, viz., 'It's trouble enough to borrow a thing without having to return it.' 'But,' he added, with a twinkle in his eye, which made me think of Santa Claus, 'I like those apples of yours pretty well, and as the evenings are getting long, and the time before election short, I just thought I would make an excuse to come over to talk politics, religion, or *bees*.'

'What part of the bee papers do I like best? Well, I'll just give you my humble opinion that *Doolittle* wasn't well named, for he *does more* than any other writer to convince me that he knows what he's talking about. There's no fustian about him. He don't expect to start a national bank from the proceeds of ten colonies of bees in one season without work.

'Another thing I've noticed lately in the bee-papers which makes an old veteran like me laugh all over—that's the *poetry* of bee-keeping. I wish some of those distinguished literary lights, who have been writing poetry about the bees, and about the poetry of bee-keeping, would just come and help me take off my honey after the first hard frost, and get the bees ready for winter. If they didn't sing a different song then, I'd have some faith in this poetry business. I would like to see some who are overflowing with poetic bubbles go through a few hybrid colonies the second day after a hard frost. If they didn't hybernate in the bosom of their families after a few charges, then I'd believe that bee-keeping was good for the sick—for the women as well—for the dude of the town or the country belle.

'I never have seen two lines of poetry in the bee-business in twenty-five years of hard work: and the nearest to poetry of anything that I ever read of was when Samson extracted honey out of the carcase of a dead lion on his way to see his girl. There's a little of the "sweet hum" in that, no mistake. But we who have to rustle for a living find but little poetry in the back-aches, and the arm-aches, and the sting-aches of the honey business. And then, after we've toiled like a galley-slave to get a crop, to have some grocery man, whose only capital is cheek, to tell us that we *made* it! Or, if it is comb honey, to have some honest granger who happens to have the enormous crop of 200 pounds, demoralise the market by dickering it off for eight or ten cents per pound.

'You who have only ten or a dozen colonies, and get just enough honey to treat your friends when they come to see you, can see all the winsome delights and poetical fancies that an idle dreamer can imagine. You probably let the patient wife or the dutiful son do all the hard work in the bee-yard. You put me in mind of a hen with one chicken. She makes just as much noise, and puts on just as many airs, as though she were a patent, double-decked incubator. If we could understand her cluck she would probably be singing about the charming pastimes of the chicken business: while the staid old biddy that comes off with thirteen chicks every clatter is too busy scratching worms to see the rhythmical lines floating in the dreamy atmosphere down in the brush lot.

'We who produce all the honey don't have the time nor the self-assurance to tell more than we know through the bee papers. We don't care enough about seeing our names in print to give ten pounds of honey to every local editor for a puff, either. Now you may say to any of these "sweet hum" men who are anxious to embark in light and profitable business, adapted to gentlemen in poor health or sickly women, that I'll sell 100 colonies, poetry and all, cheap. But the poetry would be something like this:—

'Tis the bees' delight to buzz and *bite*—
They're always spoiling for a fight,
And always sure to win it.
They'll knock the music out of a poet,
They'll make a rheumaticky subject go it,
Though he couldn't stir a peg he'd shin it—

if two or three good healthy hybrids of warlike instincts struck a bee-line for some prominent bare spot about his physiognomy.'—Eugene Secor.—*American Bee Journal.*

BEE IDYL.

He lies in his hammock under the trees,
In the hush of summer hours,
And he hears the voice of plundering bees
Down there on the bed of flowers.
The restful, murmuring music of bees
In their buzzing, monotonous note,
On memory's board of ivory keys
Has 'wakened a muffled note.
And he tries to drown, in an idle dream,
To-day with its living prose,
And glide to that past, which will always seem
A poem of gild and rose.
Though hours be as sweet as an angel's thought,
And skies wear a tender hue,
We yet dream of days whose heavens were wrought
From a turquoise of finer blue.
An hour flies by on the pinions of time—
He's resting—'Ah, bless those bees!'
He rests and dreams to their rhythm and rhyme,
And the stir of the summer breeze.
Now his slippered feet on the turf are flung:
He yawns, and essays to rise:
A smothered oath—a crushed white flower—
'I'm stung!
Confound those bees!' he cries. M. Clark.
—*American Bee Journal.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," c/o Messrs. *Strangeways and Sons, Tower Street, Cambridge Circus, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements*).

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

BEE-STINGS AS A CURE FOR RHEUMATISM.

[27.] I was very interested in the extract from *Gleanings* which appeared in the *B. B. J.* of January 2, for two reasons:—1. I wrote to the editor of *Gleanings* on the matter last spring, but whether mine was one of the statements referred to, I can't say, as I am not a subscriber. 2. My experience fully bears out the truth of the testimony of Dr. Gress, that bee-stings are a certain cure for rheumatism.

Two years ago next April I commenced bee-keeping. Previous to that for some years I had frequent attacks of the disease, more or less severe, but in the spring of '88 the complaint was worse than ever; in fact, though quite a young man, so intense was the pain that it was only with great difficulty that I could walk, and went with a limp, like an old man of eighty. A short time after, I began to dabble in bee-keeping; and, of course, in due time the stinging season arrived.

Now it sometimes happens, when we are a little put out by a person, we are just delighted if we can but 'sit' upon him. Well, I guess those bees were a little 'put out' at times, for they 'sat' upon me in an unmistakable manner. You know it sometimes does a person good to 'take him off:' it acts as a cure for pride and conceit. The result of the bees 'taking me off,' or rather trying to compel me to take off, acted as a simple cure for rheumatism. From then till now I have scarcely felt the least twinge of pain. How strange that pain should cure pain! Those of our bee-keeping friends who are on the look-out for a fresh source of income might take up the practice with profit, charging each patient, say, a fee of 2*s.* 6*d.*: if the first operation failed, a double application to be given.

Have you heard the following story, which well illustrates one of the characteristics of the honey-bee?—'A bee alighted on a little girl's hand. She held up her hand and watched its motions as it crawled to and fro. Just then it stung her. She wrung her hand in pain and ran to her parent. "Mother," she exclaimed, 'as long as it walked about it didn't hurt me, but when it *sat down* it did!"'—H. BROWN, *Weston, Stafford.*

A NEW DEPARTURE.

[28.] It will perhaps be of interest to some of your readers to hear of the new theory of wintering bees by means of artificial heat. The question is being much discussed in apicultural circles in Germany, and bids fair to revolutionise the heretofore-accepted conditions in connexion with the same.

Pastor Weygandt, in Flacht, a small town in the Saunus (hills), published last summer a pamphlet which, among other things, recommends bee-keepers to heat their bee-houses during the cold months in winter and chilly nights in the autumn and early spring. The advantages he claims are numerous—the more striking, at first sight, being, perhaps, the saving of food, for, instead of 25 to 30 lbs., he gives his colonies 5 lbs. only, and contends that, with this quantity, he carries them safely through the cold season.

With so small a consumption dysentery is not likely to show itself; indeed, he assures us that his bees require no cleansing flights at all, nor do they make any attempt at leaving the hive in unsuitable weather, in spite of a temperature of 75° F. and more in his bee-house.

The 5 lbs. of winter stores are composed of ten parts of honey to five of water, to which is added one part of wheat flour; and it is worth noting he has observed that the bees when thus treated (with food and warmth) evacuate *in the hive* a small dry and odourless substance, thus showing that the liquid excrements are probably a sign of more or less derangement.

In the early spring colonies are built up to the requisite strength with ease. *Nuclei* are carried through the winter without more difficulty than populous stocks. *Queens and drones* of any special breed can be forced by this process, and be on the wing before others not so treated.

The brood-nest can be spread without risk of chilling.

A queen may be introduced in such a manner that there is absolutely no risk of her not being accepted, namely, by placing her in a hive stocked with comb of capped brood only, the warmth of the house being kept sufficiently high to ensure the safety of hatching.

For the purpose of heating any stove will do. Hot-water or hot-air pipes will also do, but care must be taken that the air be dry.

With respect to the hives, single walls are to be preferred, and, if impervious quilts are used, a slight upward ventilation should be given. The flight-holes communicate, through the wall of the house, with the open, and are closed at night only in case of frost.

Thus are briefly sketched the main points of this 'new departure:' experience will have to show us in how far they are really a step forward in the science of apiculture.—AMATEUR IN WIESBADEN.

BEE-KEEPERS' ASSOCIATIONS.

[29.] I should like to give my experience of bee-keepers' associations. This is how I heard of them. I bought two stocks at a sale, and when I got them home I was laughed at by the other bee-keepers in this village, because the man to whom they had belonged had died, and no one had told the bees he was dead. Thinking I had made a bad bargain, I bought *Modern Bee-keeping* for sixpence. After reading it I thought I had only to join an Association, and then I should get some one to come once or twice a-year and tell me how to go on. I joined the Association, got a receipt and a ticket to admit me into the bee-tent, when I went where there was one. That was all I heard the first year. But, Mr. Editor, I thought something might have prevented the Association from communicating with me, so I went again next year, paid my subscription, got receipt and card again, then in the summer I got a printed form about the prizes at the show that was coming off at Salisbury. That was all I heard that year. Now, please, sir, don't you think I should have been a duffer to have paid another half-crown? I have never heard of any one who has had the luck to learn anything from the Association. Did I have all I was entitled to?—if so, what use is the Association to cottagers like myself? I am a groom, with wife and children. I would have followed up with my subscription if I had been sure that other cottagers would have got any benefit. Your remarks lead me to think I should have had a report from the Association. I did not receive one. Further, you say that many bee-keepers are apt to think that a small subscription should produce great personal benefits. I quite expected that some one would call upon me, at least once in the year, to show me how to manage the bees. When no one called the first year, I thought perhaps he had his journey already mapped out, and so could not call upon me; but I certainly did expect him the second year.

I should very much like to know what the Association does do. I know they have had bee-tents at the agricultural shows, but I should think the entrance-money supported the tents. Perhaps some cottager that has had some benefit from an Association could inform us a little on the subject.

I hoped when I joined that several in our village would have joined also, as a good many people keep bees. I am sorry to say a lot of bees round here died, starved to death. I saved mine, thanks to *Bee-keepers' Adviser*, not to the Association.—THOMAS RICHMOND, *Bagshot, Hungerford, Berks.*

[We sympathise with you. We consider you are entitled to a report and balance-sheet for each year, also to a visit from the expert. Speaking generally, we may say that in many districts the visit of the expert is looked forward to as an opportunity for clearing up many difficulties. Where Associations do not pay attention to this point they cannot expect to gain fresh members.—ED.]

BIRDS—CHEAP HIVES.

[30.] The missel-thrush and robin are singing in my garden here, and the bullfinches are beginning to assemble in order to devastate the buds of the plum-trees and gooseberries. These birds have increased very much during the past three years, and, unless put down with a high hand, will deprive the bees of nectar and the children and myself of fruit. I have seen as many as twenty bullfinches in my garden together, and as the buds at this season are not larger than pins' heads, each bird will, I conclude, consume a thousand buds daily. The whole flock, at the lowest computation, would consume ten thousand buds, and in a month the trees would all be stripped if the robbers were allowed to have their own way. Much as I dislike shooting the birds, here is an illustration of a struggle for existence in which the weaker go to the wall.

I have tried every remedy I can devise—nets, cotton, noise: but all proving perfectly useless, I am reluctantly obliged to reach down my gun. Hawfinches, which also are bud-eaters, have also taken up their quarters here since October, but I do not allow them to be molested.

To-day, when the sun shone bright, and the air felt warm, like spring, my bees assembled in their thousands outside the hive, but they soon returned.

They remind me, however, that I have twenty hives to make ready to receive the swarms in spring, and as time and money are 'objects' with me, my gardener, who is my right-hand bee-man, and I are devising the best hive which will combine economy and use. I must not omit to mention that were money no object. I should admit no hive into my apiary that is not approved by experts; but, as I have already said, money stands in my way, and I am obliged to make shift as I can. Eighteenpence or two shillings is all I can afford for a hive, and I make such articles thus:—I buy twenty cube sugar-boxes at 4½*d.* each. I do not say these are the best boxes procurable, but they are the best (being all about the same size) that I can get in the village here. I then buy cheap 9-in. boards, and nail four pieces together, and get these down inside the sugar-box on an extra bottom, which they just cover. I then pack the side-space inside with cork-dust, and there appears as warm and commodious a double hive as can be (by me) devised.

The covers which I made for my numerous hives last year (also sugar-boxes) took up unreasonable time, so now I use slabs of solid elm (sawn off gigantic trees), which the village wheelwright supplies to me at 4½*d.* apiece. They are seventeen or eighteen inches wide, and overlap the sides of the sugar-box. No water could get in if they remained untouched for a hundred years, and as they are very heavy no wind will blow them off or disturb them in any way. These slabs will, I think, form the cheap cover of the future, and if the idea is new, your readers are welcome to the invention.

At all events I find such roofs save much time, and if hard pressed I believe my gardener and I could turn out a dozen hives daily. All outside cracks are puttied up tight, and two coats of Carson's paint added. I use up the remnants of casks bought for farm use, and my hives, being of different colours, present a gay appearance.

But the section-boxes as at present made are troublesome affairs for the amateur when a large number are required, and perhaps some of your readers will kindly tell us how these may most easily be made, or suggest some method by which they may be dispensed with altogether.

Since writing the above I see another of your correspondents makes hives out of Tate's sugar-boxes, but his system is different to mine.—L.

AMATEUR HIVE-MAKING.—No. II.

[31.] A few particulars may be acceptable to those who would like to make my eighteen-penny hives out of Tate's cube sugar-boxes. These particulars are for beginners only in amateur carpentry and hive-making; so, more experienced friends, do not laugh at some of the details, which to you may appear unnecessary.

Plinths.—Some bee-keepers do not advocate the use of these, and if the hive is very well made, and the plain joints fit well, and are painted, I do not think them necessary, as the bees will make all tight; but for the amateur hive-maker who is not a very expert carpenter, I should advise plinths 1½ in. deep on the sides only of the body-box and shallow boxes. When they are used, take care the width of the hive across the frames, outside measurement, corresponds with the width of the floor-board exactly, which is a shade under 17 in., as all the ⅞-in. end pieces of Tate's sugar-boxes are this length. In order to get this right, measure the exact thickness of the two side pieces, as they may vary a little, and cut the back and front pieces accordingly, which will be generally a shade over 15⅝ in.

It is most annoying to nail your plinths on, and then to find they will not fit over your floor-board, and you have to do a lot of planing. The same precautions are necessary for the shallow boxes, and save a great deal of time.

In my first letter I said the ends of the sugar-boxes consisted of two pieces of ⅝-in. deal, measuring together 17 × 14 in., one piece being 9 in. and the other 5 in. deep. Sometimes I find these pieces vary a little in depth, being 9, 8½, and 8 in. deep in the larger pieces, when the smaller pieces will vary also from 6, 5½, and 5 in. These variations are rather an advantage than otherwise, as it is easy to nail a strip on if a deeper piece is required.

The entrance the whole width of the hive may be reduced by strips of galvanised iron fitting into a saw-cut. The width of the alighting-board, 2¼ in.—if two pieces 17 × 9 in. are used for the floor-board—may not be considered wide enough by some; but this may easily be added to by nailing a piece of wood 17 × 3 or 4 in. to a piece 17 × 2½ in. and screwing the latter to the bearers of the floor-board, so that it can be easily removed. When the hive is nicely painted white, it has a very neat and serviceable appearance, and it is astonishing, with a little practice and a good saw, how quickly they can be made.—A Cheshire Bee-keeper.

NOTES FROM WEST SUFFOLK.

[32.] As a bee-keeper and a constant reader of the *British Bee Journal*, I feel it my duty to send a few jottings from this quarter. The honey yield has been good, but does not come up to 1887. I have driven in all sixty skeps belonging to various cottagers this autumn, for some of which I have gone as far as ten miles in order to obtain fresh blood, which I consider most essential. I examined the above number of skeps very closely, and did not find a trace of disease. Foul-brood is entirely unknown in this neighbourhood. The bee-keepers around here are most of the old school. I made arrangements with one old chap for twenty skeps. I went and drove five one afternoon, and promised to go for the remainder the following week, naming the day. But on the morning of the day named I received a post-card, stating he did not think he should have any more taken away. This man has kept bees most of his life, and he thought it absurd that modern bee-keeping should supersede his skep system. I wish something could be done to enlighten them on the subject. Bees had a splendid flight on the 12th, and have wintered successfully up to date. I always winter under porous quilts, with about a four-inch entrance, and they always come out well in the spring; but some of my success may be owing to young, vigorous queens. Those now in my apiary were all reared in 1889.—C. Whiting, *Valley Apiary, Rendon, Suffolk.*

EXPERIENCE IN 1889.

[33.] Last spring I had a swarm and cast of bees from my father. The swarm I put on ten frames. I extracted 20 lbs. of honey from them, and left them plenty for winter. They are strong, by what I could see of them the other day. The cast I put on seven frames, which they filled with comb and honey; but when I examined them to pack them for winter I found very few bees; the combs look as though they have had no brood in them. I looked at them three weeks ago, thinking all was not right, and found them all dead, with plenty of stores. I think the queen must have been no good. I should like to know why the bees about here are so vicious: does the salt water of the River Severn affect them? They are better-tempered three miles away; I can drive them with pleasure. But nearer the dock I could do nothing without veil and gloves. I extracted 100 lbs. of honey for father from three hives, which is the best harvest we have had.—Henry T. Sharp *Brookend, Berkeley, Gloucestershire.*

THE CURATIVE POWER OF BEE-STINGS.

[34] I am sorry to say that the Sequah remedies have not been so successful in cases I know, as Mr. James Nichols has found them; a farmer in my parish has tried them, and *thinks* the 'Prairie Flower' has done him a little good, but not the oil. You know I am not a 'quackalosus,' but I can tell sufferers a remedy which proved 'a perfect cure' in my own case, and which is used now by medical men in America. Several years ago I was at Grantham, judging honey at a bee-show. My right knee was swollen and painful from rheumatism; a vicious little bee crawled up my leg and stung my knee—the pain instantly disappeared. Some months after there appeared in a Pesth newspaper an account of a woman suffering from rheumatism, unable to move her arm. An accidental bee-sting cured her as by a miracle. Other cases were reported in newspapers. My man, last summer, was suffering from a stiff neck, which pained him much—cured at once by an accidental sting while gardening.

In the *British Bee Journal* of the 2nd of this month there is a paper by P. C. Gress, M.D., Atchison, Kansas, headed, 'Convincing Testimony of the Value of Bee-stings as a Remedy.' I will not give the whole of the text, because the *Journal* costs only one penny, and is published by Simpkin, Marshall, & Co. The patient, a negro, having a bee applied to the rheumatic limb, exclaimed, 'Boss, that needle am pretty sharp.' In *Journal* of the 9th there is a letter headed 'Bee-stings a Positive Cure for Inflammatory Rheumatism.' Mr. Nichols, chemist, is wrong in saying that nothing in the world would cure sciatica. During the seventy-four years of my life I have had sundry attacks of that complaint. The last time I had it I cured it by applying chloroform blisters on the place of pain.

Should any one living near this hermitage like to try the remedy of bee-stings, I shall have quite a pleasure in making them call out, 'Boss, that needle am pretty sharp.'—J. LAWSON SISSON. *Edinthorpe, Jan. 18th*, 1890.—*In 'Eastern Daily Press.'*

STORIFYING *versus* LONGITUDINAL.

[35.] Having, several years ago, adopted the large twenty-frame hive from advice given by Mr. Abbott, sen., when he remarked that, to recommend a hive of that size to the public would be to take away the breath of many, but he had tried them with advantage, I have tried hives of most makers, and noticed the tendency of the bees to store honey in combs longitudinally in preference to sections placed over the brood-nest.

Last year I arranged seven hives for obtaining section honey by placing a crate containing twenty-one sections on each, without excluder zinc, over a brood-nest of nine frames, at the back of which were placed excluder zinc, and then as many more frames as the bees needed to keep the swarming fever down—my apiaries not being under constant supervision in consequence of my public duties.

I kept on extracting, and hoped to have some sections to compete at the county show, but on opening the hives there were only five, and scarcely any honey in sections, and, to get some for my friends and home customers, I had to take away the spare frames, and then I had two hives that were near swarming.—ROBERT THORPE, *Swineshead*.

TO LADY BEE-KEEPERS.

[36.] Seeing in your last few numbers that apiaries can be managed by ladies, and being interested in several ladies' reports and success, I am about to venture on the management of our small one, which consists of five hives. During last season I had great pleasure in watching and assisting at manipulations, &c., and did not see anything to prevent the weaker sex from undertaking the entire management, especially if well protected by proper clothing. Will any lady kindly give directions and best kinds of material to be used for bee-gown?—BETA.

HOW TO TREAT TITS.

[37.] If your correspondents who complain of the depredations of the tits on their beehives will hang a marrow-bone or two well filled with dripping outside their windows, they may turn their enemies into friends, provide endless amusement for themselves, and obtain ocular demonstration of the pretty little creatures' preference of the unctuous to the luscious, and so lure them from forbidden sweets.—J. PELLY.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee Meeting held at 105 Jermyn Street on Tuesday, January 21st. Present, the Hon. and Rev. H. Bligh (in the chair), Captain Bush, R.N., J. Garratt, H. Jonas, Rev. W. E. Burkitt, and G. H. Morris (*ex officio*), and the Secretary. Letters were read from the Rev. J. L. Seager, Rev. Dr. Bartrum, Captain Campbell, and Mr. McClure, regretting their inability to be present. The minutes of the last Committee Meeting having been read and confirmed, it was moved by the Chairman and seconded by Mr. Garratt, 'That the Committee of the B.B.K.A., deeply sensible of the great loss that has resulted to the cause of bee-keeping by the death of Mr. George Henderson, Librarian to the Association, hereby records its admiration of his many valuable qualities, and its sorrow at the termination of long-standing friendly relations.'

The statement of accounts for the past year was considered and adopted. Correspondence was read from the Oxfordshire Association in reference to the award of medals at their Exhibitions during 1889. The rules of affiliation in regard to the appointment of judges not having been complied with, the Secretary was requested to inform the Secretary of the Oxfordshire Association that the Committee regretted they were unable to grant the medals.

The Chairman submitted a few formal amendments to the rules; resolved, that the same be placed upon the agenda for consideration at the General Meeting.

Query and Reply.

QUERY.—Would you, or some of your readers, tell me if ripe stone-fruit, apricots or plums, can be preserved for winter eating by immersing them in extracted honey? If so, any suggestions to further my purpose will oblige.—W. M. BIRD.

REPLY.—We do not think you could preserve fruit in honey, even if the honey was made very hot so that no air remained in contact with the fruit. Can any one who has experimented in this direction give any assistance?—ED.

Echoes from the Hives.

Haltwhistle, Jan. 18th.—Since I sent you my last 'Echo' we have entered on another year. Allow me to wish you health and prosperity during 1890. It was at the close of the season when I wrote you, after the heather harvest; I may safely say bees went into winter quarters with abundance of stores, and generally in strong condition; but I am afraid the open, mild weather we have experienced, and the activity of the bees, will have told heavily on the commissariat. 'A fortnight at most' is the longest spell of confinement to which they have been subject. On referring to my diary I often meet with the remark, 'Bees out strong;' and on Sunday, the 12th inst., the musical hum led me on to think that summer had come once more; but we may expect some rough weather yet. This last week we have experienced some heavy gales, and to-night it is blowing almost a hurricane. To-day I noticed in bloom primroses, wallflowers, and a few blooms on the *Nepeta Mussina*.—ROMAN WALL.

Evesham, Jan. 20th.—The mild weather of the past week has been most extraordinary, and the bees have been flying daily. On Sunday, 12th inst., the sun shone brightly during the whole of the day, and they were actually carrying pollen, which I have never observed before at so early a date. Snowdrops, aconites, and Christmas roses are the only flowers that are in bloom. All my stocks seem in a very healthy condition, but I have not dared as yet to remove the quilts to examine the interior of the hives.—A. H. MARTIN.

A CORRECTION.

RAITT HONEY PRESS.—In last week's issue we spoke of the honey press as being 'invented' by the late Mr. Raitt. Mr. Wm. Thomson, of Auchinraith, Blantyre, informs us that he is the inventor of the principle of the honey press; also that he exhibited the press at Edinburgh in 1884. We offer our apologies.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

H. IRELAND.—When moving your skeps, turn them bottom upwards, and put a piece of thin sacking over the open part. Keep them with the sacking uppermost, and you should experience no difficulty.

W. M. DAY.—From your question we understand you do not mean to give the extra room yet. Yes, give the extra body-box, place excluder zinc on the top of the present frames, place either built-out comb or full sheets of foundation in the upper box. Give your early attention to them soon after the honey-flow is well on, as they are not long using up the space. If the honey season is good, a third storey may be found necessary if you cannot extract. The present entrance is the only one required.

R. DE S.—The bees referred to should have some candy placed over the feed-hole. Every care must be exercised to avoid disturbing the bees. Stimulative feeding must not be commenced yet. See 'Useful Hints' in No. 4. Due notice as to feeding, &c., will appear therein. Thanks for suggestions and kindly expressions.

A. E. B. H.—Your query received; subject is being investigated.

W. E.—The bees you refer to are evidently *very* short of stores. Give them, say, a two or three-pound lump of candy at once. You will thus avoid frequent disturbance. We agree with you that bees will in very many cases be found much shorter of stores than their owners have anticipated, judging by the usual winter consumption. From all quarters we hear of stores being short.

R. AULD.—Do not reduce the space occupied by the brood-nest yet. We will give timely notice in 'Useful Hints' when this should be done. You must delay any manipulation of the colony which has a fertile worker, beyond moving the queenless colony, not more than three feet *after* each day on which the bees have been flying, towards the hive to which they are to be united later on. There is no objection against uniting two races of bees, providing you get the selected queen safely installed. You may commence to rearrange your apiary. Those stocks which only require turning round may be turned a quarter round after each flight, while those which are to occupy fresh positions may be moved as advised above.

THE

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Editorial, Notices, &c.

SOUNDING THE PIBROCH.

An excellent suggestion was made by the Rev. J. L. Seager at a recent Committee meeting of the B.B.K.A., with a view to increasing the art and practice of bee-keeping. When the B.B.K.A. was established, in 1874, it had the whole country before it; consequently, there was no fear of treading on the susceptibilities of any other Association when arranging for a campaigning lecture in any particular district. The result was that a band of excellent lecturers, who placed themselves at the disposal of the Committee of the B.B.K.A., found many opportunities of disseminating a knowledge of the more humane method.

The general formation of County Associations in affiliation with the B.B.K.A. has had the natural effect of decentralising this portion of the work of the parent society. The results attained in some districts have been of such a gratifying nature that no immediate anxiety need be felt on their account, but this cannot be said of all. Some counties in the United Kingdom are still without an Association, even after the lapse of fifteen years of teaching. This demands immediate attention in order to further spread the benefits of bee-culture. Here we would call attention to the fact that, so far as we can learn, no other minor industry has made, during a similar period, an advance which in any measure approaches that made by bee-keeping. This should urge us to attempt much more than we have yet accomplished. Without going quite so far as to advocate that each cottage garden ought to have its hive—although we see nothing to militate against such an event—we do maintain that bee-keeping has not made the great headway it ought to have done considering the economic advantages arising out of its practice. Owing to various circumstances of their environment the greater number of our working classes, artisans, and even the lower-paid class of clerks, are denied the privilege of gathering to themselves much in the way of pets, more especially of such as can by careful attention be made to pay their way, and we take this to be a *sine qua non* with those we have referred to, although among no other class of the community do we find so many fanciers of pigeons, poultry, and dogs. This love for something of our own to protect and for which we may provide is deeply implanted in every breast, and with very little persuasion may be directed towards bee-keeping. For our gentle art we may claim a more humanising influence than is generally associated with either of the above fancies. To be a successful bee-keeper a man *must* be steady, industrious, and possessed of forethought—these are the essentials of the craft. To see all men thus would surely be an undoubted gain to the country, even if it necessitated a considerable amount of labour to attain such a result.

Next to this our thoughts naturally revert to the influence of bees in ensuring the fertilisation of our various fruit-blossoms. Volumes might be written on this subject without exhausting it. Referring to the oft-quoted instance of the apple—which, for the benefit of our uninitiated readers, may be described as having five sections—we may recall the familiar spectacle of the numerous windfalls under every tree, which will be within the recollection of many. We are aware that some consider it quite a matter of course, and, in fact, a providential thinning of the crop. Not in the least. Should we be equally complacent to find our currant and gooseberry crop reduced by, say, one-half, owing to a severe frost? Yet both are simply the natural outcome of nature's inflexible laws. In the case of the currants and gooseberries, the frost destroys

the vitality of the fruit, while in the case of the windfall apples, it will be found that an overwhelming majority are misshapen, flatsided monstrosities, of any shape except that usually assumed by a well-conducted apple of decent pedigree. Why? Because the fertilisation of the apple-blossom was imperfect, and the whole of the five divisions of the ovary did not receive a supply of pollen. Although we could not ensure the bees remedying all this, still their presence in anything like considerable numbers would tend to minimise the non-setting of all fruit crops.

It will afford us great pleasure to find the B.B.K.A., at its annual meeting, prepared to adopt Mr. Seager's suggestion that a system of public lectures be given at different centres by its representatives. When given in connexion with existing Associations, such lectures will be found to strengthen the bond of relationship between the Central and County Associations, while the latter cannot fail to be invigorated thereby. In counties where no Association exists, we may surely hope that one will be quickly established. A certain amount of additional expense must necessarily be incurred, but there should be no difficulty in arriving at a satisfactory solution of that point.

From time to time we have published correspondence upon the relationship of, and combination of work between, the Central and County Associations, and we are exceedingly glad to note that the B.B.K.A. has (at the instance of one of its Committee) such a thoroughly practicable suggestion for increased usefulness, and at the same time one which must considerably strengthen the present cordial relations with the several County Associations. The opportunity now occurs for rendering considerable assistance to the parent society by assisting with practical suggestions, many of which can only be evolved from intimate local knowledge not in every instance attainable by the Committee of the B.B.K.A.

The B.B.K.A., at its very inception, set itself a high standard as regards its aims, which have been the admiration of the whole bee-keeping world. From that day to this it has, under all circumstances, maintained its philanthropic platform in its entirety, and we have the fullest confidence that no effort will be wanting on its part to excel all its past efforts.

USEFUL HINTS.

Weather.—During the past fortnight some peculiar changes of temperature have been experienced, while for no inconsiderable portion of the time extremely heavy winds have prevailed. On the night of Sunday, the 19th, the minimum temperature was 24°, but by eight a.m. on Tuesday morning 55° was recorded, showing a rise of 31° in less than thirty hours. At the time of writing the wind is again sharp and chill.

Queens.—There is much in the remarks anent 'Amus Periwinkle's Kween,' on page 31. In our last 'Useful Hints' we referred to the attempts of our American cousins to develop the 'coming bee.' It behoves us to guard against getting 'setting' queens only, let them be even the most beautiful. Once more may we warn new beginners especially to avoid purchasing queens with superb markings, where such markings are not indubitably associated with excellent working characteristics. Many an old-fashioned cottager, who had no ideas in advance of the skep and the brimstone pit, did, by a process nearly akin to that of natural selection, so weed out colonies not distinguished by good qualities, that he became the possessor of a strain of bees noted for being good-tempered, good workers, and reasonable as regards the swarming instinct. Surely, in view of this having been accomplished with skeps, we in these halcyon days of frame-hives should avail ourselves of our much greater opportunities for improving the strain. Let us get the working qualities first, and leave the markings out of calculation until the more necessary points have been permanently fixed. The reason we have dwelt upon this at some length is not so much for the professional queen-breeder, who, we can quite understand, must to a very great extent be governed by the whims of his customers, as for the average bee-keeper. We wish to educate him to a better state of things, so that by raising the standard required, the careful, conscientious queen-breeder may meet with his due reward. Of necessity the pedigree of a queen can scarcely be traceable except on the maternal side, and for any record of the working qualities of the mother queen we must, when purchasing, rely solely on the *bonâ fides* of the seller. The element of uncertainty introduced by the doubtful paternity can only be successfully overcome by the breeder, who, when he has established a high standard of excellence, induces further confidence by his strict integrity.

Shallow Frames.—We anticipate a more general use of these in the near future, especially in districts where sections are rather a drug in the market. With the peculiar variations of climate as we are annually subjected to, it becomes imperative in poor honey-producing districts to adopt such a system as shall best conserve the working power of the stock. The shallow frames will in many cases be just the thing. Provided the bees start with foundation, such shallow frames will be drawn out in less than

half the time that sheets the size of the standard frame would be, the principal reason being that the working cluster does not become so attenuated as with the larger frame, nor yet broken up into such small working parties as is the case with a section rack. Some have suggested getting the shallow frame stored and capped, then cutting it into such sized pieces as would admit of their being slipped into sections, subsequently returning them to the bees to fix. We fail to see any benefit likely to arise from such manipulation.

Foundation in Sections.—We are frequently consulted as to the advisability or otherwise of supplying full sheets of foundation in our sections. The observations of Mr. Heddon, which we publish *in extenso* on page 64, are extremely interesting and well worthy of careful perusal. There are certain periods in which a colony will do their utmost to raise drone-comb. May we not take it as a sign that some natural law, which we may fail to perceive, is directing the energies of the bees to provide for the fertilisation of a fresh queen? How this tendency of the bees may be made to render us the greatest benefit is a question still to be decided. While on this subject we would refer to Mr. Doolittle's caution on page 65, against allowing a surplus of drones to be 'around.' His method of *curing* patches of drone-comb may be of use to many of our readers.

Lady Bee-keepers may gather a hint or two, and take courage withal, from the article we reproduce on page 66. Referring to the likes and dislikes of bees, we are intimately acquainted with a gentleman enjoying most excellent health, but of an exceedingly volatile disposition, who cannot pass down his garden, when his bees are active, without being badly stung. This without any undue motions on his part. Yet his gardener, who is phlegmatic, can do anything with the bees, even when perspiring most profusely. We have known the gardener to come straight from the pigstye to hive a swarm, and yet not get stung. The 'odoriferous' theory appears to fail here. Is it not possible that the temper of the bees is excited or subdued by animal magnetism more than by anything else? We should be pleased to receive opinions on this point. To the same cause we refer the wonderful 'soothingness' of some nurses, who, without appearing to do much, exert an enormous influence for good on the patient.

Feeding.—In view of the continued mild weather, and the frequent flights of the bees, many have become anxious as to the amount of stores still available. Although, theoretically, there should be no necessity for feeding at present, we are constrained to believe that quite a large number of stocks are getting very short of stores. Many bee-keepers fail to begin autumn feeding sufficiently early, the result being that cold weather arrives before enough syrup has been stored. Consequently any exceptional activity during the succeeding months brings such a poorly prepared stock to the verge of starvation long before spring feeding can be commenced. To such we say, choose the lesser of two evils, and do not hesitate to *quietly* place a cake of candy over the feed-hole; but avoid any further disturbance, any excitement at this season of the year being highly prejudicial to the welfare of the colony and to the prospects of the coming season.

Alley's Self-Hiver is the latest attempt to overcome the loss of time involved in watching for swarms and then hiving them. Its inventor is a bee-keeper of known position, and from his long experience speaks with the voice of authority. We have, therefore, taken an early opportunity of reproducing his report on its action; and should any of our readers have one in use during the coming season, we shall be glad to hear results. We confess to considerable fear that when the actual outward rush of the swarm takes place, there will be considerable danger of the entrance becoming blocked. But as Mr. Alley has not referred to this risk, it may exist in our imagination only.

ANNUAL MEETING OF THE ONTARIO B. K. A.—FOUL BROOD.

The annual meeting of the Ontario Bee-keepers' Association was held in the city of Belleville, Ont., on January 8th and 9th. Owing to the prevalence of 'La Grippe,' and the recent meeting of the International Bee-keepers' Association at Brantford, Ont., this annual meeting was not as largely attended as usual. The Convention, however, was a successful and profitable one. As the *Canadian Bee Journal* and *American Bee Journal* will doubtless give extended reports of the proceedings, I shall merely outline them and refer more at length to a discussion on 'Foul Brood' which grew out of one of the papers read at the meeting.

Four sessions were held—two each day—one of them being a joint meeting with the Eastern Dairymen's Association, which was also in annual convention of two days' duration. On the evening of the second day the apiarists and dairymen were entertained at a magnificent banquet given in their honour by the Council and Board of Trade of the city of Belleville.

The reports from the Secretary and Treasurer, including those from affiliated Societies, showed the Ontario B. K. A. to be in a strong and healthy condition, with a handsome balance in the treasury.

Besides the annual address by the President (Rev. W. F. Clarke), papers were read as follows:—By Allen Pringle, on 'The Sun and Cloud of Bee-keeping;' by F. A. Gemmill, on 'The Production of Comb Honey;' and by F. H. Macpherson, on 'A Model Premium List,' all of which were discussed at length by the meeting.

The principal discussion, and that perhaps of most importance, was on 'Foul Brood,' and the necessity of seeking legislation from the Ontario Government to aid in its suppression. It appears that in the western parts of this province foul

brood is becoming alarmingly prevalent, while here in the East it is practically unknown, so far as I have been able to ascertain. Several members had experienced, and were experiencing, the disastrous effects of the disease in their own yards, and hence their eagerness to evoke discussion of the subject, and enlist the Association in an endeavour to secure needed legislation for its suppression.

Touching the origination of foul brood, the unanimous opinion of those who took part in the discussion, including some who had had considerable experience with the disease, was that it could originate from unsanitary conditions in the apiarist's own yard—such conditions as the decomposition of 'chilled brood' or decapitated drones within the hive.

We are well aware that this theory is combated by some of the authorities on the subject, who contend that the disease is propagated solely by the pre-existing micro-organism or germ, which has been traced as the foul-brood microbe. But the question naturally arises, Why may not this germ be originated wherever and whenever the conditions favourable for its development are present? And who can tell exactly what these conditions are? This is not mere theory. The experience of more than one member present pointed very strongly to the conclusion that foul brood may, and actually does, sometimes arise from a foul condition of the hive arising from rotting brood. This conclusion, if well founded, has great practical importance as a factor in any effective action towards the suppression or prevention of the disease. The apprehension is evidently now arising in the minds of leading bee-keepers generally that this matter of foul brood is the most serious one immediately confronting them. Some years ago it was the wintering problem, but that may be said to be practically overcome. Then 'Spring Dwindling' loomed up as the great drawback, but it, too, has yielded to the science and art of apiculture. Now it is foul brood, which of course must also ultimately yield; but till then—what? That is the question.

How is the evil to be met? While Governmental assistance may be valuable, we must not look for too much from that source. People are too prone to look to such quarters for assistance instead of helping themselves.

Of course, where one's neighbour harbours foul brood in his yard, and is not only culpably careless, but 'pig-headed' and obstinate as well, some wholesome law is required to straighten out his crookedness; and officially paid *inspection* may also prove a great aid. The whole matter having been pretty thoroughly discussed, a delegation, consisting of the President-elect and Vice-President, was appointed by the meeting to go before the Minister of Agriculture and urge such legislation as may be desirable.

The election of officers for the current year then followed.

It was decided to hold next annual meeting at St. Catherine's, Ontario.—ALLEN PRINGLE, *Selby, Ont.*

Extracts.

USING FULL SHEETS OF FOUNDATION IN SECTIONS.

This is an important point. Scientific bee-keeping discovered, and put it down as a fact, that the less drones the hives contain the better. In a state of nature bees need more drones to the colony by twentyfold than they do in an apiary under the guiding hand of the bee-master. This is not all; we desire to fill the air with drones from certain colonies, while from others we prefer to have none at all, and my most successful honey-producing colonies are those which have no drones at all. This alone is enough to set up the theory that a successful and profitable colony needs no drones at all.

Now, then, when the brood-chamber is full of worker-comb, unless you fill the sections full of worker-comb also, nearly all drone-comb will be built in the sections. It is conceded that drone-comb is not as handsome for surplus honey as the worker size. It certainly is not as strong for shipping; but all that amounts to but little compared to the point that if there is any drone-comb in the surplus sections it will be filled with drone-brood unless a queen-excluding honey-board is used; and then, if it is only possible for the queen to pull and squeeze herself through the narrow passage-ways surrounded with metal, she will do so. The bees must urge her up, or convey to her the knowledge that there is drone-comb above. This is true of all hives, of all shapes or depths, and as plainly possible with one depth as another, provided, as stated, there is no drone-comb in the brood-chamber.

I have a stomach that will not digest beeswax at all, and it will not digest honey-comb any more than it will beeswax; but any perfectly smooth, indigestible material, like comb or wax, is most wholesome, and greatly aids digesting other food. It is especially beneficial even in connexion with warm biscuit, because it mixes up with the biscuit material.

The only hard substance to digest is something that *will* digest, but will not do so readily. Anything that will *not* digest at all produces no strain upon the digestive system. The conclusion is, that comb honey is the most digestible food in the world. If the honey is thoroughly ripened by the bees (that is, digested), how readily it assimilates, the bees having done the work. The comb being wholly indigestible, no effort is made by the system to digest it, and so it passes along without harm; but with the beneficent result of aiding the other substances in the stomach to digest more readily, making avenues, as it does, for the acids and gastric juices to thoroughly mix up with the food.

Practice has proven the above long ago; and what is practically true is never theoretically false.—JAMES HEDDON.—*American Bee Journal*

DON'T RAISE A SURPLUS OF DRONES.

From what I have seen in nearly every apiary which I have visited in the past, I am of the opinion that bee-keepers lose very much of the profits which they might otherwise secure, by having too much drone-comb in their hives. Each colony should be allowed one or two inches of drone-comb, but no more, unless such colony is one which we wish to rear drones from for the improvement of our stock, and in this case I generally give from one to three frames of such combs. Where three drone-combs are used in each hive it is a rare thing that I secure any surplus honey from this colony, for the drones will secure nearly, if not quite, all the surplus honey gathered by that colony, especially if I try to have the colony keep these drones throughout the season. To be sure, the colony will generally give some surplus right in the height of the season; but this must be given back for the drones if they are kept after the honey harvest. I have given this item so that the readers may know just what a lot of drones in each hive will cost them. 'But,' says one, 'if this is the case, why allow any drone-comb in any but the colony which is to rear drones?' The reason for allowing one or two inches of drone-comb to each colony is that all colonies which I have ever seen will have some drone-comb anyway, even if they have to tear down the worker-cells to get it, building drone-comb in its stead. Now, where we try to exclude every cell of drone-comb the bees revolt, and build drone-comb in out-of-the-way places; a few cells here and a few cells there, so that the bee-keeper has no chance of keeping unwelcome drones from flying, by way of decapitating them just before they hatch, unless he uses a drone-trap, which thing is an inconvenience to the bees and their owner, generally speaking. By having this one or two inches of drone-comb all together in a single comb, and that comb placed in a certain position in every hive, it is a very easy thing to open the hives every twenty-three days and decapitate all the drones in the whole apiary. By placing this comb on the outside, or next to the side of the hive furthest from where the brood-nest is, in the spring, the queen will not lay in it until the bees become strong enough to compel her, so to speak, to lay in drone-cells. In this way drones are not produced in hives thus fixed till late in the season; and if left in this position none will be reared late, as these outside combs are the first to be filled with honey, thus doing away with any more drones, as the bees are not as anxious for drones at this season of the year, hence will not take the honey out of the drone-cells to rear them. In this way, about twice decapitating the drones, during one season is all that is needed with any colony.

'But,' I think I hear some one else say, 'it is easy enough to talk about only having one or two square inches of drone-comb in a hive, but quite another thing to keep the drone-comb down to this; for almost every year holes get in some of the combs by way of mice, mouldy pollen, &c., which the bees fill with drone-comb when they "patch up." How is this to be avoided?'

To remedy this matter, my usual plans have been either to fill these holes with old worker-comb or with foundation, using the comb where wires were not used in the frames, and foundation where the frames were wired. The best time to do this is when the fruit-trees are in bloom; for at this season there is little honey in the hive, hence all patches of drone-comb are readily discovered. Take all but the desired combs, which have drone-cells in them, out of the hive, and substitute perfect worker-combs for them; after cutting out the drone-cells, fit a piece of worker-comb into the hole made by removing the drones; or if the comb has a hole in it, fill it with worker-comb, thus getting the start of the bees. To best do this, I have several sizes of old fruit cans, without either top or bottom, one end of which has its edge filed sharp, so that it will easily cut a hole through the combs by twirling a little while pressing down. By using the one which will just take out the drone-cells a good job is done; while by using the same to cut out the 'patch' of worker-comb, the same will fit in exactly. These worker 'patches' are always taken out of imperfect combs, which materially lessens the number to be patched. For wired frames, cut away the cells around one side of the hole, so that the septum will be laid bare about the edge of it, and press a piece of foundation on this bared edge, having the foundation so warm that it will adhere to the comb while doing it.

Now, this is the best way I used to know, and the only way, where the apiarist is short of combs; but there is a point about it which I do not like. All around the edges of this 'patch' there will be cells of all shapes and sizes which the bees persuade themselves into thinking are for drones whenever any are large enough to rear drones in, so that we often have as many drones reared around a large 'patch' as would be reared in one square inch of drone-comb. When I came to have a surplus of combs, so I did not need all I had in early spring, I thought out the following, which has proved as near a success as anything that I know of. All the imperfect combs were taken from the bees as before; but, instead of being 'patched,' they were hung away in a dry airy place till the bees became strong enough so I could form nuclei. Now, all nuclei or very weak colonies desire only worker-bees, so they will build cells of that size only as nearly as may be, they being always willing to build comb whenever there are bees enough, and honey coming in from the fields, or they are fed. After cutting out the drone-comb, or thinning the combs as I desired, they were set into nuclei to be patched; and, let me tell you, the patches thus put on were very pleasing to my eyes, and I have here told my readers how it is done, so they can share the pleasure with me next season: they have plenty of time to prepare for the same.—G. M. Doolittle.—*Gleanings.*

CAN WOMEN KEEP BEES?

They may do just what men do—they may keep bees, get better health and more strength—and make more money: and women, like men, may fail, and wish that they never had an intimate acquaintance with bees.

The first thing to consider and determine is the 'constitutional affinity,' or the 'constitutional aversion,' for bees. Strange stories are told and printed about bees. Here is a man who, in haying-time, covered with perspiration, with bare arms and hands, without any covering for the face, rushes in from the field and hives a swarm of bees: and although the bees 'walk over' him from head to foot, yet he feels not the sting of a single bee. There are bee-keepers who will place both hands under and around a cluster of bees, dislodge two handfuls, and place in a hive, and continue the process until nearly the whole cluster is removed.

And there are others who would go into battle where shot and shell are flying as cheerfully as they would take part in a swarming. Often we hear a remark like this, 'I cannot go near bees: they recognise me as a natural enemy, and will attack wherever they find me.' This I believe to be in great part imaginary, although occasionally it appears to have foundation in fact. Apparently bees are influenced by odour; they detect by this sense, and, second, by the sense of feeling. What they do with their many eyes is not definitely known. Of course they see, but they smell apparently quicker than they see. Some odours will drive bees wild, while others have no effect upon them. It is possible that the odour of a human body in a state of health is not disagreeable to bees.

There are many women bee-keepers in the United States, and they find bee-keeping pleasant and profitable employment. There are no 'millions' in bee-keeping, but there is a good reward for labour. Some women in the west control large apiaries, and give their whole time and attention to the industry. School teachers and others have abandoned their schools and other indoor employment for bee-keeping and health. Bee-keeping will restore health, at least: and if good health is not a prize, what is?

But women, and men, too, are warned to walk before they run in bee-keeping. Begin with not more than three colonies; give a year's apprenticeship: study for a year the habits of the bees, and make yourself master of them. Confidence comes with the acquisition of knowledge. The dress worn by some bee-women is a kind of half-bloomer costume. Perhaps the most convenient is a skirt of light material, gathered at the ankles. It is little more than a wide bag, with two holes in the bottom for the feet to pass through. It is quickly put on and taken off, and serves as an all-around apron. Wear gloves and a veil; the gloves will be discarded after the knack of handling the bees comes, but at first they give confidence.—*Massachusetts Ploughman.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* MR. J. HUCKLE, *Kings Langley, Herts (see 1st page of Advertisements.)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

MY EXPERIENCE.

[38.] I live in a cold part of North Yorks, not for from the point where history tells us the last English wild boar was slain. In the year 1884 my desire turned to bees. I thought I should like to keep some, but how was I to get them? None were kept hereabouts. I had seen some at a farmhouse some four miles away, years ago. One day thither I went to see if they still kept bees. None were to be seen in the usual place, so I went to the house and inquired, when I was told they had mysteriously died off a year or two ago. I asked several questions, but little could I learn, except that one good season they had made 8*l.* profit out of their six stocks; but they said it all depended whether they were *lucky* or not, &c., &c. The Yorkshire show was that year held at Ripon. I was there, and saw the bee-tent; a few hives and appliances were shown. I watched the driving very closely, saw the queen caged, the bees handled, &c. I was very interested in the proceedings. At last I got in conversation with one of the frame-hive exhibitors, of whom I bought a hive and stock, which, according to bargain, had to be sent me on August 11th from his apiary at home. I also bought that useful book, *Modern Bee-keeping*, which I eagerly read. I saw the *B.B.J.* advertised therein; I ordered it of our bookseller, and I may here say I have taken it ever since, and many a useful hint have I gleaned from its pages. The bees arrived all right. I got them safe on to their stand in my garden. Now, when people saw I had begun to keep bees, they told me all sorts of discouraging tales, how that different people in the neighbourhood had started to keep them, but they had died off. However, I was determined to try. Having, as before stated, read *Modern Bee-keeping*, and become a subscriber to the *B.B.J.*, I saw that failure was owing to ignorance: management was the necessity, not luck. But then there was the cold climate to contend with. A local saying is to the effect that we have nine months winter, the rest cold weather. Be this as it may, I have seen it snowing in July and August, and have also seen the roads blocked with snow in the middle of May. My stock wintered well, and came

out strong in the spring, 1885. I bought another stock of the same person during April. Both swarmed twice. I got 40 lbs. in sections during the season, chiefly from the first swarms. I also got eight lots of driven bees, which I made into three stocks. I went to a place ten miles away for them, and drove them myself. Thus I had nine lots to winter, of which seven came through; one old stock and a second swarm had died through not having winter passages. I commenced 1886 by buying a Raynor extractor, intending to work for extracted honey, as sections fill too slowly in this part. I got somewhere about 200 lbs. of fine honey, gathered chiefly in July, from the meadow blooms, a sample of which I sent to the editor of the *B.B.J.* I was answered by a post-card from our late friend, Mr. Henderson, on which he stated the sample was almost the brightest he had ever seen, the taste pleasing, and flavour very fair. In the autumn I got an invitation from Mr. Howard, of Holme, to pay him a visit. This I readily accepted. Being a cyclist, I determined to wheel away the distance, which was about 190 miles. I started early on the Thursday morning, stayed at Bawtry that night, was at it again early on the Friday, and was at Holme in the evening. A hearty welcome from Mr. and Mrs. Howard made me indeed feel at home. I cannot here describe all I saw there; sufficient to say the hundred stocks or thereabouts, the piles of snow-white sections, the well-arranged apiary, the honey-room, the workshops, &c., together with the instructive talk with Mr. H., and manipulations of several stocks, made me thoroughly to enjoy my visit. And when on the Monday morning I turned my steed homewards, I felt I had learnt something worth a 380 miles run. In remembrance of my visit I brought back with me a view of the 'Model Apiary,' which is now framed, and hangs in my sitting-room. During 1887 I had about 300 lbs. of honey, and a design of the figures 1887. 1888 was the cold, wet season. I had only three swarms, and about 50 lbs. of honey, and a lot of stocks at the verge of starvation. When August came, and no sign of better weather, I commenced to feed; also to unite all the weaker lots. I made up sixteen strong stocks, to which I fed during twenty days about thirty stones of loaf sugar made into syrup. All came through the winter right, but three had afterwards to be united, through the loss of queens. The average this season was about 40 lbs. per hive.

In conclusion, I would say to those living in more favoured parts, take courage from the above results. As will be seen, I have increased my honey total each year: my stocks have also increased. I have at present twenty stocks, which I believe, without exception, are wintering well. I intend to limit my number to twenty stocks, believing them to be sufficient for this neighbourhood. We have had the experiences of 'The Village Blacksmith,' and of many other country workmen: mine is that of —A Country Ropemaker.

NATIVES *VERSUS* FOREIGNERS: A CHALLENGE.

[39.] It almost bewilders a novice in bee-keeping even to remember the many different varieties of bees that come to us from other countries. He is further perplexed by the numerous and widely different characteristics of the various varieties. Finally, he is completely puzzled to decide whether he shall go in for the dear old Natives, Cyprians, Ligurians, Carniolans, Syrians, Syrio-Ligurians, Syrio-Carniolans, &c., or which. Why, dear Mr. Useful Hints, should we not settle the matter in a business-like way? Doubtless, any given race of bees are differently affected by the sunny South, the Midland Counties, and the bleak North, as regards their characteristics. But surely that is no valid reason why those who live in the favoured South should not try to find out, at least, what race or variety suits them best as an all-round bee, giving the best results in quantity and quality. The same bee might possibly not be the best in Scotland, or here in Lincolnshire. But, leaving the North and South out of the question, might not we, in the midst of the shires, come to something like a definite opinion as to the variety of bee most suitable for our district? I would suggest that we first get, say, twenty-five or fifty, or even more, of the best bee-keepers to agree to enter into a friendly contest. From these select a certain number to represent the native bee and an equal number to represent the foreigners. Then get half of each side to work for comb honey, and half of each side to work for extracted honey. A few simple rules would be necessary, permitting the spreading of brood, but forbidding the addition of brood from other stocks. All honey to be taken off on a given date. Any sort of hive, &c., to be used. Permission to be given for sections to be piled up as high on the working stocks as the bee-keeper may desire, even supposing he has to use a pair of steps to reach the topmost ones. Of course, every competitor should honestly record the nett weight of honey taken.

Mr. Editor, I do think this would assist us considerably to arrive at something like a satisfactory conclusion on the question which is the best bee for our district. I feel sure many who took no part in the contest would await the publication of the result with considerable interest. What is your opinion, sir?—J. W. Blankley, *Denton, Lincolnshire.*

[You will see we have touched on the subject in 'Useful Hints' (which were in type before we perused your letter) of the necessity for improving, or rather fostering and developing, the working qualities of our bees, as regards their honey-producing principally—providing always that undue stinging propensities are at the same time either eradicated or at least prevented from becoming more pronounced. This would be a grand competition if it can only be arranged. What will our friends do to help on our correspondent's scheme? We shall be glad to receive correspondence on the subject, also names of any willing to take part.—Ed.]

CASTS COMMENCING TO BUILD FROM SIDE OF HIVE—OLD COMB.

[40.] The publication of my assertion, made at the *conversazione* of the B. B. K. A. with reference to the above question, and my subsequent letter in the *B. B. J.*, seem to have called forth adverse opinions from several bee-keepers, and among them from one who most bee-keepers know as occupying a position in the foremost ranks. I allude to Mr. Walton. Now, each of these have taken a much too superficial view of the question, or else—I cannot see it myself after reading the report and my letter—I have not been sufficiently explicit. I will quote my letter: 'Bees accompanied by a virgin queen placed in a hive, minus any artificial aid . . . . always *commence* to build drone-comb, and continue so to do until queen is fertilised.' The italics are not in the original. All those who have written adverse opinions seem to think that I have asserted that they continue to build drone-comb long after fertilisation takes place, and also expect to find huge slabs of such comb after the hive has been completely filled. This will never be found to be the case, as normal swarms, accompanied by virgin queens, invariably have much less drone-comb, when all the combs are built, than swarms accompanied by fertilised queens. I ask these gentlemen, how long is it after a virgin queen emerges with a swarm before she is fertilised? Rarely but a few hours. Sometimes while on the wing with the swarm; at other times a day or couple of days. If the queen is fertilised, say, three hours after swarming, but the nucleus of a comb will be built; as this comb—it may be but the commencement of a couple or three cells—is, as I assert, drone-comb, and as drone-comb normally is built close to side of hive, it has given the swarm the direct inclination to commence comb-building at side of roof instead of from the centre of same. Almost directly the queen is fertilised, they build worker-cells, and, as these swarms rarely or never have the swarming impulse the same season, they continue building worker-comb until, if the season allows it, they fill the hive with same except a small piece, perhaps of but a few inches, at side of hive. This is the same piece which they commenced building after hiving, and which is often one of the last combs to be completed. Now I hope I have fully explained the question, and my friends will 'own up' that it's about right. Mr. Woodley (in letter No. 11) mentions my having shown a piece of very old comb at a meeting held at Newbury. This comb, instead of being, as he writes, fifteen years old, was twenty-two, and was a portion cut by myself from the centre of a hive that had been continuously tenanted by bees for the time mentioned. I have been able to completely authenticate this, and shall have much pleasure to show it any time, when the size of the cells will be found to be as large as those built and used, as Mr. Woodley writes, for but two years. —W. B. Webster.

OLLA PODRIDA.

[41.] The present open weather will be an opportune time to make any alteration of or to renew old paths about the apiary, where a quantity of brickbats, old mortar, or clinkers can be obtained. The first step is to remove the soil to the depth of six inches, then fill in with four inches of above rubbish, then two inches of gas-lime, on which spread a thin layer of cinder ashes, and roll down firm: this will give a nice dry walk at all seasons; and if the same process is carried out on the spot of ground on which the hives stand, it will conduce to the welfare of the bees by destroying the many lurking-places of their enemies. If hives standing on such a foundation were only a few inches from the ground that would be enough to ensure their dryness. Another great point in favour of such path or plat is its immunity from weeds for many years, if not for all time; and also the warmth retained in the path and prepared plat surrounding the hives would save the lives of many tired and wearied bees returning from long journeys in early spring.

Spring Dwindling.—On reading Mr. Jeffery's article in *Gleanings* I said, 'That is exactly my experience.' Whenever I have noticed a colony that was always on the *qui vive*, that colony always lost in the running: and for several years past (well, say four) I have superseded the queen, as soon as I have had one to spare from a quieter strain, thus weeding out of my apiary such restless activity. Some eight years ago I had a neighbour bee-keeper, whose bees I used to have for driving, and it was from this strain I first noticed such unusual alertness, not only from a honey-gathering or pilfering point of view, but also in a free use of the sting. Here were two undesirable traits which required eradicating; and I have succeeded, as far as my apiary is concerned, in doing so, and the bad season of 1888 completely eradicated from off the face of the earth the strain from which I used to get the driven bees. I shall be glad if some of our observant bee-keepers will give us their observations on the subject; possibly this point will be fraught with much good to the craft.

Winter Space under Frames.—I fail to see any advantage to be derived by the bees from a deep space below the frames, except the almost impossibility of blocking the entrances with the dead, and with apiaries situated some distance from home this I admit would be worth considering: but how an extra few cubic inches of air can conduce to the preservation of the inmates of a hive, or tend to the quietude of the same, is beyond my ken. I can quite understand the scientific bee-keeper, or the inventor of a patent hive, making a great noise over such or similar discoveries, but, to the plain matter-of-fact bee-keeper, I myself do not think we should reduce the percentage of our winter losses if we adopted the trays or ekes. What do such bee-keepers as Messrs. Abbott, Blow, Baldwin, Howard, and Neighbour say on the point?

Shallow frames have been advocated, and I expect adopted, somewhat largely during the past year or two. May I ask what are the advantages of the shallow frame over the Association standard size when used side by side in the same apiary? Do they either add to the quantity or quality of the produce of the apiary?

House Apiaries, as far as I know, have not been adopted in this country to any extent, though for warm, sheltered positions I do not see why as good results should not be obtained from hives placed in houses as from hives on single stands; the greatest objection is difficulty of manipulation without jarring and disturbing the whole of the colonies on the same shelf. This would apply to early and late (in season) manipulation. In the busy time of the ingathering of the honey harvest, bees soon get over the disturbance of manipulation. If I were going to start 'House Apiaries,' I should have them in long hives, similar to Captain Hetherington's in America, with only one row of hives, and not as shown in *B. B. J.* (page 44), with two rows, one above the other. The top row of entrances must be at least four feet from the ground to give supering room to the bottom hives. This elevation is not good or desirable from the honey-producer's point of view, or, taking a humane feature, it is not good for the poor laden bees; but, as I said at head of par, the situation will settle that part of the question. On the item of expense, I cannot say which of the two systems would be the cheapest; but in these days of wood-working machinery, when squares of good matched boarding can be bought so cheap, the labour bill would be the largest item in making a house to take, say, a dozen hives. The proximity of hive entrances need not enter into the discussion. (*Vide* Mr. Blow's articles, on 'Bees kept in Cylinders,' in previous volumes of *B. B. J.*, and said cylinders placed in stacks like drain-pipes, with only one plastered front to the whole heap, with entrances made in each with a stick pushed into the mud or plaster while still soft.)

Pity the poor judges of a 'National Honey Show,' with, say, 500 booths of honey to taste; how many '*palates*' have we in England that could endure the consecutive application of 500 samples of honey? What I have always advocated to meet the case is, prizes restricted to small apiaries, say of three or five hives, the quantity to be staged being consonant with the size of the apiary. The late discussion in these pages of 'Points in Judging' has, or ought to have, educated the latest recruit to the craft. Now that the oracles have spoken, all that each one has to do is to work up to the required standard, and if he does not feel equal to facing the competition this year, let him go to the shows and take stock how the first and second prize exhibits are got up, also the style of capping that meets the judges' approval; in fact, the various points of excellence that generally distinguish the first prize exhibits: then make a note of same, not only mentally, but also record it in his 'Bee-book' for future reference; and if he or she is in a district where honey of good quality and colour is obtainable, and the bee-keeper is possessed of a good strain of bees noted for evenness of capping, depend on it another year, all being well, some of the chief honours will be won by that bee-keeper, especially if the said bee-keeper is an enthusiast.

When writing the foregoing paragraph the vision of sections capped evenly came to the front, and was jotted down. Yes, this is the *crux* of the question—evenness of capping. Who among bee-keepers working in large apiaries has not noticed the marked difference in the finish of even *bees' work?* I have two colonies in a twin hive. This is a great point in selection and improvement of our race of bees, if we are going to produce comb honey especially, and it is a point on which I have spent much thought and considerable practice to weed out of my apiary all colonies that have not proved up to the mark in even capping, though I am fain to admit that it will take considerable time to entirely eradicate it from an apiary where every season new blood is introduced by driven bees. The colony may be a good working colony as regards quantity, but the capping of the produce may be very rough and irregular, and at the same time very dense: and if advantage is to be taken of these points, *i.e.*, good workers and prolificness, the best plan is to start the said colony on extracting combs, and, before doing so, to shave off the heads of every drone brood there may be in the brood-nest before the second compartment is put on, and later in the season, when young queens from colonies of first grade are ready to supersede the queen, carefully going through the frames and cutting out every queen-cell. Allow me to endorse the hope of 'X-Tractor,' *re* our old friend 'A. E.;' we miss his spicy jottings very much.—W. Woodley.

VITALITY OF BEES.

[42.] The following may be of interest to some of your readers:—Rather late in September last I took the honey from two skeps belonging to a friend of mine who lives some three miles from here. He has kept bees for more than twenty years, and has, until the last two seasons, destroyed the bees when taking the honey in the autumn. Arriving at my friend's at about half-past five in the afternoon, after a little delay in selecting the stocks to be driven and where to drive them, I took the first skep to a table on the lawn, some distance from the apiary, and proceeded to drive the bees. By the time they had all run up, and I had secured them in the skep with a cheese-cloth, a smart shower came on, which continued until dark, compelling me to cut out the comb, and finish up under cover. When I got this stock home, I noticed a peculiar hum, which arose at intervals, swelling gradually, and then as gradually dying away. From this I doubted if I had taken the queen.

Not being able to drive the second skep that evening, I went three days after, and started work a little after four o'clock in the afternoon.

not wishing to leave it so late as before, for the evenings were very short at that time of the year. I forgot to mention that I took with me on the first occasion my son and daughter, aged twelve and fourteen years respectively, both taking great interest in bees. They accompanied me on my second visit. My boy, Frank, was getting skep, irons, smoker, &c., ready, when, on going to the table I had previously used, he called out, 'Father, here's the queen.' Yes, true enough, on a piece of comb full of water from a heavy shower of the day before, lay the queen, to all appearance dead. This was the queen of the stock I had driven three days before, and must have been exposed to the weather all that time. I said to the boy, 'Well, it can't be helped: she is dead: throw it away.' 'Here, Kate,' said Frank to his sister, 'you try and revive her.' Kate pulled off her gloves, and placing the queen in one hand, covered her over with the other. In about ten or fifteen minutes she was so far recovered that I was forced to put her in a small box, which I placed in my trousers pocket. I then proceeded with the driving of the second skep, but I failed to detect the presence of the queen in this stock also. I packed up some of the comb with honey and pollen for transferring to bar-frames when I got home (which proceeding I have since concluded to be a mistake so late in the season). Having cut all the combs from the skep, I packed up, and we started for home, where, on arriving, I examined the queen which I had in the box, and finding she was very weak, gave her a little honey on a piece of comb, which I placed in the box with her, intending to introduce her to the bees in the morning, but unfortunately she died during the night.

The next day I transferred the comb containing honey and pollen into six frames, using the largest and fullest combs I had. They did not fill the frames, but left a space of nearly two inches between the combs and the frames at each end. These I placed in a wooden hive that will hold twelve frames, and pushing back the division-boards as far as they would go, I spread the six over the hive, which was now ready for the new-comers.

I then poured a little warm syrup, scented with peppermint, into the first stock taken, gave a little smoke, and waited a few minutes, then inverting the skep, and giving them a good round shake or two, I poured them between the frames of the wooden hive, and after closing up the frames a little, covered them over with a quilt, leaving them to settle, first seeing the entrance was open to its full extent. I next placed a board, 42 in. long by 20 in. wide, in front of the hive, one end raised to the level of the alighting-board, the other resting on the ground. I then shook the bees off my hat and coat, and what few remained in the skep, on the board.

I treated the second skep in the same manner, uniting it with the first (which had no queen), but, with this exception, I threw the greater portion of the bees on the board in front of the hive; they quickly ran in, and in less than an hour they had nearly all entered. At the end of that time I carefully lifted the quilt, and found the six frames were not sufficient, so I dropped in two more, put a bottle of syrup on the top, covered them up with plenty of quilts, and packed cushions outside the divisions, to keep the heat up. I examined them from time to time, supplying them with syrup as fast as they could take it down: but they did not seal sufficient stores to keep them through the winter, so, as the weather was getting cold, I took out two frames, reducing the number to six, which were well covered as far as the comb went, but there was still the space at both ends. I discontinued the syrup, and fed them on candy, which they took readily. All went well with them until about a week after Christmas—no, I think it was the 4th of January—when we had a severe frost (22° below freezing-point). Finding the cold so intense, I took the top off the hive, and as I could hear no sound I carried it into the house, when, on opening it, I found the bees—oh, yes! they were *there*, but *frozen*, lying in heaps on the floor of the hive, and hanging in bunches on the combs. My chagrin was great, what was to be done? 'Ah, Sam Goodheeve! well, we'll see.'

I set to work, assisted by my son and daughter; first swept all the bees off the floor-board into a skep, then those off the combs, but I found some of them had crawled into the cells, and the only part of their bodies visible was that in which the sting is situated. Leaving these in the combs, we collected the remainder; they did not quite fill a quarter of the skep. I poured about half into another skep, covered both skeps with cheese-cloths, and placed them in front of the fire, leaving them there while I brought up another hive into the house for examination; and not hearing any hum I lifted the quilt rather hastily, and was rewarded by 'one on the nose.' That I did not mind, however, for I found that hive strong and well. I removed the top quilts and the cushions, replacing them with dry, warm ones; of course, I did not touch the quilt next the frames. I treated all my other hives in the same manner, and I am glad to say, as far as I can judge from so imperfect an examination, they appeared to be strong and well.

I then turned my attention to the frozen bees in the two skeps, which I had examined from time to time to see that they did not get too hot during the manipulation of the remainder of the hives. I found a little more than half had revived and were hanging to the cloth in one skep, but not quite so many in the other. These I swept off the cloths into a fresh skep, and, covering them, I poured a little warm syrup on the cloth. I continued taking the bees off the cloths and adding them to those in the third skep, until I had succeeded in reviving about three-quarters of the whole stock.

I am afraid I must postpone the rest until next week; I have already occupied too much space.—PROPOLIS, *Woodford, Jan. 27th.*

FOUL BROOD.

[43.] I intend this spring to try if the bees will take medicated pea-meal (*artificial pollen*), as a preventive of foul brood. I have never heard of such being tried before; I am of the opinion the germs are most apt to live in the cells containing pollen. Some bee-keepers in America have pronounced acids a failure for curing foul brood; perhaps they never thought of the pollen. I propose using salicylic acid mixed with pea-meal (dry), and let the bees store it themselves. I have not decided the proportion yet, and will be glad to hear the opinion of other bee-keepers on the subject—what they think of the idea, what medicine they would recommend, and the proportion.—W. Hogg, *Castle Douglas.*

BEE-HOUSES.

[44.] As for some time past I have been thinking of erecting a bee-house, I was glad to see the letter (20), page 44, of 'F. G.' on the subject, and hope, with him, that some who have had personal experience in that line will give us the benefit of it, so that the *pros* and *cons* may be fairly weighed before embarking on a system that appears to be condemned by many advanced bee-keepers. Ideas as to the construction of a bee-house would be welcome to me, and perhaps also to others. As I wish to establish a small apiary several miles from home, by the side of a railway, a shed of some kind in which section crates and sundries might be placed is almost a necessity; and as I was thinking the matter over it occurred to me that it would be better to make a shed large enough to contain the hives as well, as they would be safer there than out in the open. So I concluded to make one which would contain on the front and one end eighteen hives, to have a door at the opposite end, and shelves for crates, &c., at the back. I thought of having a revolving window in the middle of the front, to be covered with a close-fitting outside shutter when not in use. Is there anything to be said against keeping bees in such a structure, or can any one kindly suggest any improvement?—S. W. R.

A DISAGREEABLE NEIGHBOUR.

[45.] I should be glad of the Editor's or readers' opinions on the following:—Can my neighbour compel me to remove hives which are set pretty close to the wooden palings which divide his land from mine? He relies on proving that the bees are a nuisance, inasmuch as they get into his house and frighten his wife and child. His house is situated at the back of my hives, and the nearest point is ten yards or thereabouts away. I might remark that I had two hives in my garden before my neighbour came and built next to me. I have nineteen now. He confesses that he does not know a bee from a wasp, but he positively asserts that MY bees are his persecutors. He refuses to be mollified with presents of honey.—Midlands.

SHALLOW FRAMES.

[46.] With respect to your correspondent 'W. B.'s' letter (No. 14, issue of Jan. 16th), there certainly are some advantages to be claimed for a frame $4\frac{1}{4}$ in. deep inside measure, namely, that it can be used for holding the $4\frac{1}{4}$-in. section, and that the combs cut out will completely fill sections, or two combs a standard frame, which mine do not, but leave room for a narrow strip of foundation. Using a single tier of them, as I do, I should not care to have sections in them, part of the *raison d'être* for having a box of shallow frames under the sections being to give ample room for brood-nest, and I grudge having sections so occupied: but if I did use them for section-holders—*i.e.*, for $1\frac{3}{4}$-in. wide sections—I would not make the frames more than $1\frac{1}{2}$ in. wide, so as to allow a bee-space between them, or else cut slots in the top and bottom bars corresponding to those in the sections, and wedge a dummy division-board up against them to hold all close. A frame occupied with three sections would not be so pleasant to uncap as a single comb in a frame narrower than itself, interrupted as it would be by the sides of the sections and from the capping being lower than the surrounding wood.

There may also be the objections to the $4\frac{1}{4}$-in. inside measure frame that, being $4\frac{3}{4}$ in. outside measure, two of them may not fit in each side of the extractor, that a box of them will be $\frac{1}{2}$-in. higher than a rack of sections, and that they will not pack away two deep in boxes for standard frames.—Matthew Hy. Read, *Clonoughlis, Straffan Station, Co. Kildare.*

AMATEUR HIVE-MAKING.

[47.] My favourite hive is the following:—Roof: Simmins' pattern, 21 in. square. Body-box: square outside, 19 × 19 in., just the right size to take the above covers. In winter the spare roofs will sit comfortably on top of those in use, thus doubly ensuring freedom from leakage. Inside measure: $14\frac{1}{2} \times 17\frac{1}{2}$-in. single walls on two sides. Floor-board: moveable, 19 in. square, with entrance cut in one edge. As both hive and floor-board are square, the body-box can be turned round so as to bring frames either at right angles or parallel to entrance.—Midlands.

Different kinds of sugar, such as sucrose, glucose, and lactose, agree in containing carbon, hydrogen, and oxygen, the latter two in the proportions in which they form water. This sugar becomes the heat-giver to the bee in the following manner:—Air containing oxygen is taken in by the bees through spiracles (the breaking openings) in the sides, which are fourteen in number, and this oxygen is by degrees united with the carbon of the sugar, which is being carried about in solution in the fluids of the insect.

Echoes from the Hives.

Great Bromley, Essex.—It is about twelve months since I sent my last, and as I have not seen an 'Echo' from my part of Essex, I thought a line or two might not be uninteresting. I could write a long account of my management (and mismanagement), but dare not encroach upon your patience or your valuable space, so I will get to business at once. All my stocks—four in number—came safely through the winter of 1888 and 1889. One, which was made up of condemned bees, dwindled in the spring, could not get them up in time for work; *surplus therefrom, nil.* No. 2, also condemned bees, rather better, but not strong enough just at the right time; *surplus, twenty one-pound sections.* No. 3 was beautifully strong when the honey-flow came on: *surplus, forty-five sections* and a splendid swarm. No. 4, *better still*, fifty-five sections and a *large swarm*. Total for the season, 120 finished sections and *two natural swarms*. After giving a few sections to friends and taking what I required for my own use, I sold all the others out by the end of September, making 4*l.* 2*s.* 8*d.*, and might have sold more. I think, sir, this is very good, indeed—at least, it seemed so to me, although not so good as some of the returns which I read of. I had been trying to induce some of my neighbours to try the *frame-hives:* but the season of 1888 made my appeals of none effect. But my little workers altered the opinions of my neighbours, I think, for they fully demonstrated the superiority of frame-hives as soon as they had the opportunity which 1889 gave them, and I have had the pleasure of transferring bees into frame-hives for *four* of my friends, which I hope will come out right in the spring both for their sake and for that of the craft. I have now to act as 'Amateur Expert' (about seventh degree) for all of them; but I try to rise to my great responsibility by taking in the *British Bee Journal*, from which I gather all the information I can possibly need. I have now *six stocks*, all in frame-hives, which were all in splendid condition when I packed them up for winter, and though the mild weather we have had keeps them on the wing rather more than I care to see, yet I trust they will come out all right, and have, at least, no worse season to contend with than that of 1889. More later on.—G. H. Jaggard.

[We are pleased to hear from you at all times. —Ed.]

Upper Slaughter, Gloucestershire.—The past year, I am happy to say, has been more favourable here in mid-Gloucester than its predecessor for us poor bee-keepers, though not quite as good as Jubilee year. I found, on looking over my note-book, I had taken sixty-five well-filled sections and about 50 lbs. of extracted honey, leaving ample stores for winter consumption, the produce of three hives wintered on syrup and candy. I consider the above very good. As I wanted increase I let them swarm at their own free will, and surely they did, two hives yielding three swarms each. The last of each I lost, having settled in the top of a very tall tree near my apiary, remaining there for three days and then disappearing. The honey-flow with us only lasting about a fortnight, nothing was done while the white Dutch clover was out; but Sainfoin and Alsike were teeming with bees, likewise the limes. Having had great experience in driving and wintering, I should be pleased to give it if it would interest the readers of the *Journal*.—C. W.

[We shall be glad to hear from you on any subject at your convenience.—Ed.]

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication. All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

W. B.—We prefer not to publish the communication sent; it savours too much of the advertisement.

Somerset Bee-keeper.—It was made privately. We will endeavour to help you shortly.

W. R. Marshall.—With your mild climate you are almost certain to lose a large number of your bees if you move them the short distance you name. Your best plan will be to take them at least two miles away for a few weeks, and then remove them to your new place.

J. W. Blankley.—You will find the information you require on page 12 of this year's volume. Possibly you have overlooked the name under which you asked the question.

A. Butler.—Capital sugar. Ten pounds sugar, seven pints of water, one ounce vinegar, one ounce salt; but it is too early to give syrup.

Samson.—Place the candy on top over feed-hole. See reference to feeding in 'Useful Hints' in this issue. You would save your bees much labour by transferring the present combs to the new frames and tying them in with tapes. But this must not be attempted for some considerable time yet. Mention will be made of this subject under 'Useful Hints' when the proper time for carrying it out arrives.

J. G. Brown.—You must have had an unfertilised queen or a fertile worker. You did wrong in allowing seven frames of drone-comb in a hive. See article by Mr. Doolittle on page 65. You must remove the most of the drone-comb from your other stocks later on, or you will get too many drones. We will make inquiries about getting a society started.

Why is a bootblack like a bee? It improves each shining hour.

Therefore may such hours be many, say we, in the year 1890.

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Editorial, Notices, &c.

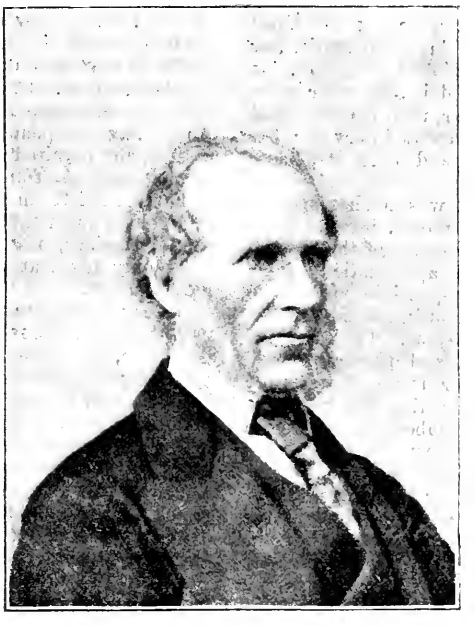
EMINENT BEE-KEEPERS.

No. 22.—MR. JOHN LOWE.

Amongst those who have by their works contributed to the advancement of bee-keeping in Scotland stands prominently the name of Mr. John Lowe.

Mr. Lowe was born in the parish of Little Dunkeld, Perthshire, on the 18th of May, 1813, and there received the rudiments of his education.

When he left school he was sent to Edinburgh, where he graduated as a student at the College, probably with a view to qualifying him for one of the learned professions. If this intention, however, was entertained it was not carried out, for we find Mr. Lowe accepted a situation in the Edinburgh and Glasgow Bank, which subsequently became merged in the Clydesdale Bank. He filled this situation, with great advantage to his employers and much honour to himself, for about half a century.



MR. JOHN LOWE.

Although a city, or its immediate suburbs, is not the best of places to carry on bee-keeping, and notwithstanding the difficulty of getting a suitable location for bees, Mr. Lowe managed to secure a small piece of vacant ground not very far from where he was living, on the eastern side of Dean Bridge. Here he determined to establish an apiary, but the limited area of the ground and its surroundings necessitated his adopting the non-swarming system of bee-keeping. For a considerable time he devoted his attention principally to the production of honey, sending his stocks off to the heather, like other bee-keepers, as soon as the clover harvest had ended.

He was not satisfied with practical bee-keeping only, but was fond of experimenting, being anxious to become acquainted with the internal mysteries of the hive. In these experiments he was assisted by his then brother, the head master of the Grammar School at Dunkeld.

Most of his day was occupied at the Bank, he therefore could not devote himself to his bees like those who have more command of their time; for the same reason he could not make the observations that required frequent and continuous watching. He was, however, quite abreast with all that was being done in the bee-world at that time, and was also a skilled practical bee-master.

For a period of twenty-five years Mr. Lowe contributed from time to time, interesting and well-written articles on bee-keeping to the *Journal of Horticulture*, also during the year 1866 he sent a weekly paper on bee-keeping to a publication called *The Farmer*.

As an able controversialist and elegant writer he had few equals. He held his opinions with great tenacity, and in the controversy on foul brood, in 1863, Mr. Woodbury found him a formidable opponent. Mr. Lowe persisted in maintaining that foul brood was only an artificial disease induced by experimenting. To this persistence on Mr. Lowe's part we are indebted for the efforts that were subsequently made to discover its cause and cure. The controversy brought into the field the testimony and experience of the highest British authorities of that day, such as the 'Renfrewshire Bee-keeper,' the

'Hampshire Bee-keeper,' 'B. J. W.,' and others. Their evidence showed it to be a 'real,' and not an artificial disease. Since that time, Schönfeld and others have shown the true nature of the disease and its fatality, and all know the difficulty, and in some cases the impossibility, of effecting a cure.

Mr. Lowe had the honour of first introducing into Scotland the Egyptian bee (*Apis fasciata*), which Mr. Woodbury had discarded on account of its irascibility. However, the consternation which the vindictive habits of this new importation, when disturbed, caused amongst the surrounding householders and inhabitants, proved fatal to the continued existence of his little apiary. The outcry against the little furies became so loud that every stock, even the most peaceable, had to be banished to the distance of some miles.

Besides *Observations on Dzierzon's Theory of Reproduction in the Honey-bee*, Mr. Lowe also published several pieces of poetry of considerable merit.

As a man and a member of society, Mr. Lowe was genial, affable, unwilling to offend, being animated by a true Christian spirit, and cherishing the kindliest feelings towards all. It was his lot to be sorely tried in the latter years of his life. First a daughter, then his wife, and next an only son, died at short intervals; but he bowed to the strokes and bore the losses with fortitude.

In 1883, Mr. Lowe, who was much respected by the circle in which he moved, became prostrated by paralysis: the Directors of the Clydesdale Bank, to show their appreciation of his work and services in the responsible position he held in their service, generously retired him on a life pension of 150*l.* a-year. He never recovered his lost strength and powers to any extent, and only lived for three years after his first attack. With recurring shocks weakness increased, till, on December 15, 1886, after a chill which caused confinement to bed for twelve days, he quietly departed, having completed the seventy-sixth year of his age. One daughter survives him, and is at present residing in Edinburgh. The engraving is from a photograph kindly lent to us by the Rev. R. Saunders.

SHALL WE BECOME OVERSTOCKED?

Our correspondent 'A. M.,' on page 82, has reopened the question of overstocking, but his argument appears to rest on insufficient premises. Lest his letter may tend to discourage others, we will endeavour to point out, in a friendly manner, that no fear need exist on this point for some years to come. Many districts near large towns are quite unfitted for bee-keeping on anything approaching a large scale, owing to the almost certain impossibility of bees finding even sufficient forage to enable them to store an adequate supply for the necessities of the coming winter. But this does not arise from an overstocking of the neighbourhood, but from its unsuitableness. It is not the number of bees, who by their very numbers starve each other, but the paucity of suitable plants and the exceedingly short period during which even these few plants are available. From this we may gather that, were the bee-keeper in such a neighbourhood the possessor of one stock only, he could not expect it to store sufficient to meet its wants, except by the aid of artificial feeding. Therefore the resident in such a district who attempts to keep a large number of stocks of necessity involves himself in an amount of heavy labour that, although it would appal many, may not, under any circumstances, be set aside if the colonies are to be kept alive. At this point we are moved to express the opinion that, although it will be found an exceedingly difficult matter to overstock any honey-producing district of reasonable capacity, it is a most easy thing to overstock the bee-keeper. We have little hesitation in saying that some have their hands quite full in attending to, at most, two or three colonies. From circumstances often unavoidable, they find themselves compelled to put off until the morrow some operation that ought to be done at the moment—perhaps, in fact, ought to have been done yesterday, or even the day before that. Such cannot, while pursuing this course, escape a large amount of worry. As we have frequently pointed out, to be successful, any required manipulation *must* be performed *quite in time*—in fact, a little before. Whatever is left undone, is the throwing away of a golden opportunity which may never occur again; besides, neglecting to carry out this work only aggravates itself, by inducing other requirements.

A very striking instance of this came before us last season. A friend of ours who had only five hives, and whose bees we looked after, took 250 one-pound sections (not reckoning some extracted honey besides); this gives an average of 50 lbs. per hive. Although surrounded by bee-keepers, and some of them having forty to fifty hives, this harvest was by far the largest of any, the next best returns being 20 lbs. of extracted honey per hive, and the general average of the district was from 5 to 10 lbs. Hives in skeps gave absolutely nothing. In this case it was not that the district had been overstocked, but the best management, more particularly doing just the right thing at the right time, produced the favourable results. In former days in our district, as our own methods of management improved, so did our returns, and that notwithstanding the number of bee-keepers and hives had enormously increased.

Is it not just possible that 'A. M.,' having other matters to attend to, is absolutely prevented from giving the time necessary for twenty stocks, and that his better attention to their wants makes a smaller number relatively more profitable? We trust he will not be discouraged at this remark, but bear in mind that a little well done is of far greater value that an abortive attempt at too much. The different years quoted were of such various peculiarities that it is

hardly possible to draw a fair deduction from that point of view only. For instance, in one part of Middlesex with which we are acquainted, where much dependence is placed upon the lime honey, great disappointment was experienced this year owing to a prolonged drought completely drying up the blossom, while in 1886 colonies in the same district stored as much as 40 lbs. and more from the same source in about ten days. It may be added that the number of bees in that particular locality is about half as many as in 1886.

It is impossible to state with certainty how many hives can be kept in certain districts, as at present there are no reliable statistics available, but we think it probable that in a good country district forty to fifty colonies of bees may, in a fairly good season, furnish a good surplus from every 100 acres.

BEE-DRESS.

As I cannot see into futurity to know how certain bees are going to act, whether civil or otherwise, I wear bee-armour when I have occasion to work with them. I have often heard people say, 'Bees, hornets, nor wasps never sting me; why, I used to put them into my mouth when a child!' yet I have seen those boasters put to rout by a colony of hybrids.

Bees are like the human family—not all alike in their dispositions. Some days during swarming-time I have hived a number of swarms that I could scoop up in my hands, and then, again, one that would sting everything that it came in contact with. Our house has never been entered by a burglar, yet we think it prudent to lock it when we leave it or retire at night. So we believe it to be the part of discretion to be prepared for angry, vindictive bees.

UNDERWEAR.—First, drawers that reach to the ankles, and are kept in place by straps which pass under the feet, and the stockings are drawn up over them. The drawers are attached to the body by buttons: the body is high-necked and long-sleeved. I remember once helping my mother-in-law hive a swarm of black bees: at that time I had never worked with them at all, and only knew that they would sting and gather honey. She told me to hold the hive, which was only a tall box, under the cluster, while she hacked away at the limb. I held the hive up at arm's length, without any protection for my face and hands. My sleeves were open at the wrists, and I soon found that the jarring brought down the bees, and that my sleeves were full to my elbows. Since that experience I prefer to fasten my sleeves securely at the wrists before hiving swarms, and also wear close drawers.

BEE-HAT.—There has been a good deal of sport made of me for wearing this article, D. A. Jones, of Canada, even going so far as to insinuate that it was a good thing that I was married, for, if I was not, I would stand a poor chance of ever getting a partner after being seen wearing it. I have tried veils on hats and sunbonnets, but they fail to protect my neck: they are all right to walk round the apiary in, but in working with bees around trees, and getting in all sorts of positions, the veil gets too near the face or neck, and stings are the result. There is a very pretty device, made of watch-spring, for supporting a veil over the head, advertised in the *American Bee Journal*. It is light and airy, and is just the thing to wear while fishing, to keep off troublesome insects, but the veil catches to twigs of trees while hiving swarms, gets torn, and soon is no protection, as bees soon find out holes.

The bee-hat that I love and adore is made of fine wire mesh, painted green. I measure from the shoulder to the top of the head, allowing two inches more to roll over and over into hems, for top and bottom, to stiffen it. This hat is not intended to set on the head, but over it. I use a full width of mesh, lapping it at the back to suit size of head. I am very particular about the hem, so as to leave no ends of wires to scratch my face or hands, or catch in my hair while putting it off and on. I lay the mesh on a board or table, and turn over the mesh evenly and hammer down, and keep turning down and hammering until I have a stiff hem, free from sticking ends, then lap it at the back, allowing plenty of room for ears and nose. I sew to the top a piece of pasteboard, generally cut from a box, and is oval-shape, longer from front to rear than side to side. To the bottom is sewed a cape, which has an arm-piece to put the left arm through and open at the right. I make it of a suitable length to suit the person wearing it, and it has a draw-string at the bottom, which is tied at the right side when in use. I sew on old post-cards, or thick papers, if the ears touch the mesh, and also where it may rest on the back of my head when stooping over. I wear buckskin gloves with gauntlets, which have stout deming sewed to them, extending up the arm and kept in place by elastic.

I put on my hat and tie it at the side, then a linen sacque, and draw up over the sleeves the gloves, when I am ready to battle with all the cross bees in Christendom, and not receive one of their compliments.—MRS. L. HARRISON, *Peoria, Ill.*

Extracts.

EXTRACTED HONEY—PRODUCTION, CRYSTALLISATION, AND USE.

Honey properly extracted is honey in its pure and perfect condition. When we speak of 'extracted honey,' we do not mean the article simply as it comes out of the extractor, with its natural impurities of particles of wax, bee-bread, &c., but after it has passed through the necessary manipulations to make it an inviting article for the market.

The process of extracting is simple and generally well understood. The solid comb, before it is placed in the extractor, is uncapped with a suitable knife; but comb with a feeble

support, or in a broken condition, is uncapped and extracted in lids of wire net-work.

The method of straining the honey after it is extracted should be adapted to the condition of the honey, and other circumstances. A general error is to force it through a cheese-cloth, with meshes so coarse that the honey carries with it foreign particles, being left more or less in a cloudy condition, and is neither attractive to the eye, nor delicate to the taste. The desideratum to be obtained is pure honey, and nothing else. This can only be effected by straining it through close, firm muslin, not by pressure, but by a slow process of percolation, the honey passing through the cloth in transparent crystal globules. For this condition of honey, I have not found to fail a good local demand and uniform price.

It is generally conceded to be indicated to extract when a comb of honey is capped. Then it is supposed that it is 'cured,' and fit for extracting. But as capping is not uniform, and extracting has to be done with many combs only partially capped, what have we to do with this mixture of honey that in the aggregate is only partially cured? This is an important question. But, in the first place, what is 'cured' honey? It is honey inspissated. Imperfectly cured honey, after straining, needs special attention; otherwise, it may pass into acetic fermentation.

There are three ways by which honey is cured, viz., 1. In the comb. 2. Soon after extracting. 3. In storage.

First, as regards the curing of honey in the comb, we might ask this question, 'Will a long storage of honey in the comb improve it?' Certainly not, as, by age, the capping becomes impure and dirty, which in time will, to a more or less extent, penetrate the honey and give it a dark tint.

Second, the curing after extracting is to leave the honey in open vessels, not entirely excluding the air, but especially protecting it from the dust and light.

Third, the process of curing in storage takes place in barrels, after previous ripening, and is something like a limited vinous fermentation, or rather the development of a melic ether—a process of purification; for after such a storage for a month or two, the honey will wonderfully improve in its crystal appearance. By this method, the honey must be kept perfectly excluded from atmospheric air.

Honey in barrels will tax our utmost ingenuity to keep in a state of fluidity, and not allow it to turn into crystallisation. Candied honey in the market is an abomination. Although to the eye of the bee-man it is indicative of its purity, the customer associates it with the dregs of a molasses-barrel, and is consequently little disposed to buy it.

Crystallisation of honey can be rectified, as well as prevented, by the application of heat. This will cause such a molecular change in the honey as to bring about the desired effect. But if the action of heat is too great, it will give the honey a dark tint, and tends, in a measure, to impair the deliciousness of its taste.

I have tried two ways to treat crystallisation—first, of the honey in glass jars, and, second, as a prophylactic, in putting it up in barrels.

When the crystallisation first forms in the bottom of the jars, I place about a hundred of them at a time in a metallic trough, in enough cold water to reach to two-thirds the height of the jars, and then apply the heat gradually until the crystallisation is perfectly dissolved. This heat is not to go beyond 160° Fahr., but may be held at that point until perfect dissolution has taken place.

To prevent the crystallisation in barrels, the honey at the time of straining is to be warm in temperature, but not hot. Even to strain the last half of the barrel warm, may suffice to secure a lasting fluidity of the whole. The barrel is to be kept permanently air-tight.

Sometimes I heat honey in the process of straining, at least when the weather is cold, and that part I expect to keep over winter. In an article published in the *American Bee Journal* of August 8, 1888, I gave the form of a strainer which is a muslin bag about four feet long, cone-shaped, hemmed at the opening over an iron or wooden ring, or hoop, to keep it open, and to receive hooks for suspension.

When the honey in the bag is too thick and cold to strain freely, I slip into it a tin cone nearly half the size of the bag, and fill it with boiling water: as the honey gets heated by induction, the straining goes on admirably. When the water loses its heat, it can be readily removed by a syphon, for which I simply use a common gum-elastic tube. Sometimes I place the vessel that receives the strained honey over a kerosene stove, and lower the strainer with the honey into it, and heat carefully. After the whole mass comes to a proper temperature, the strainer is drawn up by the aid of pulleys, and the bag will soon become empty. By this method the temperature is regulated by the sense of touch. Much carefulness, however, must be exercised, for fear of overheating the honey, and getting melted wax into it, and otherwise impairing its value. As I am writing this (December 2, 1889), I have straining going on by the aid of heat in my honey-house. One difficulty in straining through fine cloth, is that it soon becomes clogged with fine particles of wax, &c. This will oblige us to keep several clean strainers on hand, and as one ceases to be serviceable a fresh one must be used, leaving the honey that may remain in the partially clogged one to percolate slowly, which may take several days before it is empty and fit for washing. The water in which the strainers are washed may be used for making honey-vinegar.

It is an interesting experiment to extract honey and do crystal straining simultaneously, and with marked rapidity. This is effected by placing the comb, after it is uncapped, into a loose-fitting sack, made of thin, fine muslin, which is the strainer. The same centrifugal force that will throw the honey out of the cells, will force

the honey through the strainer. These sacks are very easily changed and cleansed, and are not so quickly clogged as the cone strainer, for in reversing them an opposite pressure has a tendency to clean the sides of the sacks, working the débris to the bottom.

Another method, is to extract honey in the ordinary way, and afterwards strain by placing it (and even cappings) in tin boxes with straining cloth on both sides, and strain by extraction.

The question of bleaching honey has often come to my mind. As solar bleaching has such a happy effect on wax, I was led to try it on honey. So, for the double purpose of breaking down crystallisation in jars, and bleaching in the same time, I filled a 'solar wax-extractor' with jars of honey. The heat destroyed the crystallisation, but the excess of heat darkened the honey, and virtually ruined it. This experiment shows hows how careful we must be in manipulating honey with heat. It likewise points out the method of evaporisation for converting honey into an acceptable sugar, which should be done more by a tepid fanning process than by heat alone. Having secured the honey in a pure condition, either in bulk or glass jars, it is ready for the market. I neatly label the jars, only as the honey is ordered, to give them a new and fresh appearance. The human taste, in its craving for sweet and fat, is more active in the fall and winter, than in the warm weather. It is a physiological necessity. Advantage should be taken of this fact to sell at the right season.

Extracted honey will evidently remain a staple article in the market. Honey in comb, on account of the wax, is not as digestible, nor is it as free from impurities as nicely extracted honey. As it is difficult to secure it always in a neat, uniform appearance, and requires much care in handling, it is not likely to be much longer furnished by extensive apiaries. I tried it for one year, as a novelty, and found the extra care and labour it required made it less profitable than extracted honey at a less price.

It is well known, in extracting honey, that an atomisation of honey takes place, which not alone permeates the room, but at times arouses the whole apiary while the operation is going on. Persons with weak lungs who work the extractor and inhale the honeyed air are wonderfully benefited by it. Why does honey act as a pulmonary sedative, having no direct sedative properties in itself? The medical profession is fast drifting into the belief that all pulmonary diseases are *maintained* through a micro-organism —in particular in phthisis, pneumonia, whooping-cough, &c. Honey is an efficient antiseptic, but differs from all others in being void of irritating properties. When kept in contact with microbes, it is destructive to them, and it is their destruction that gives ease, and apparently serves as a sedative. This accounts why it serves as an efficient tropical remedy for many external diseases. To atomise honey for any kinds of cough, asthma, influenza, hay-fever, &c., it should be used in a warm solution, and applied by a steam atomiser. In certain cases, the honey atomiser should be in continuous action day and night in the chamber of the patient.

From experience of personal benefit, I am greatly interested in this part of the subject—and I believe the bee-fraternity may confer a benefaction upon mankind by reporting their experience and observation on this matter.—G. P. Hachenberg, M.D.—*American Bee Journal.*

Honey for 'La Grippe.'—As this disease is rapidly spreading throughout the country, and various remedies for its cure are recommended by physicians, we will state what occurred near the editor's home a few days ago. A neighbour's wife was very low with the disease, and a consultation of three doctors was held, the result of which was to advise, as a last resort, the use of honey—saying, that if honey would not save her life, nothing with which they were acquainted could be relied upon to meet the case. The neighbour called at the editor's residence for some honey, and was fully supplied. It is prepared and used thus:—In one-half teacupful of *hot* honey, put the juice of one lemon, and take, as a dose, two teaspoonfuls occasionally, or as often as seems necessary, and as hot as can be endured comfortably. In case the stomach is too weak to retain the honey, two or three teaspoonfuls of milk will remove such difficulty. The editor of the *American Bee Journal* is following this prescription, and finds great relief from its use. As now seems to be indicated, if honey proves to be the effective remedy for this general affliction, bee-keepers should be well prepared to treat it in their own families, and find a ready demand for at least some of their honey crop in every affected home in the land. Let apiarists spread the news that 'honey' takes all the 'grip' part out of '*la grippe*.'—*American Bee Journal.*

Beginners in bee-culture, during the first year, generally know it all; after that they find out by degrees that they know much less about the pursuit. It has always seemed somewhat strange to us why beginners in bee-culture were not satisfied to accept the teachings of practical bee-keepers and follow them, until they gained sufficient knowledge of their own to save them from falling into the theoretical pitfalls of hearsay bee-keepers. Bees are not taught, but simply guided in a line with their instinct. They may be led in this direction to perform certain things that to the novice seem incredible. Success depends on a knowledge of the laws by which they are governed, and the advantage we are able to take of it for our own good.—*American Bee Journal.*

A German scientific journal says that 'bees are good storm signals.' The suddenness with which a bee raises a storm depends upon what portion of the anatomy the insect alights. If on the bare neck, 'thunder and lightning!'—if not a stronger expletive—will follow immediately.—*Norristown Journal.*

Humour.

NATURAL HISTORY LECTURE.

The honey-bee differs from the majority of bees and insects, inasmuch as it has considerable sense and business ability. While others are flying about and having a good time, the honey-bee is getting in its work.

'How doth the busy little bee
Improve each shining hour?'

How it doth is very simple:—

It gets a movement on itself
And works the early flower.

The honey-bee shows considerable ingenuity in the management of its affairs. They are bossed by a queen, and if by any chance there should happen to be two queens in one hive, a part of them will immediately vacate; they know better than to put up at any establishment run by two females.

The honey-bees are rather hard on the menfolk of their kind. While everything is lively, and honey is plenty, the gentlemen honey-bees sit out in the front porticos, and tell stories, and have a good time. When summer begins to wane, there are hints thrown out that the gentlemen had better go hire a flat for the winter; they take this all good-naturedly, and think it is all humbug. When cold weather comes, however, they are escorted to the front door, and pushed off the perch, without so much as a honey-comb with which to dress their whiskers.

A lesson in thrift is taught by the honey-bee, and they also teach the foolishness of working and laying by more than is needed, for some one else to come along and make merry over, as the man who so kindly provides them with a nice little hive takes the lion's share of the honey. Alas! in this world it is often the case that the man who lives in the nice house is working for the benefit of the mortgagee.—E. R. Collins, *in 'Texas Siftings.'*

A NEW ESTIMATE OF THE 'BUSY BEE.'

There is no insect more thoroughly objectionable than the bee. It is even more disgustingly active than the ant. At the first dawn of day the bee sets off to hunt for honey, and continues at the sticky occupation until night. So far as is known, the bee receives no salary whatever, but works either to pamper the pride of a fat and useless queen, or because it is a prey to a miserly passion for heaping up honey. In the former case the bee deserves the contempt of all free men, and in the latter it displays a loathsome mental and moral degradation. In either case the bee's willingness to do unnecessary work is an insult to intelligent human beings.

Scientific persons are fond of telling us of the bee's tremendous geometrical knowledge, and parade in proof thereof the fact that it builds hexagonal cells, thereby packing the greatest number of cells with the smallest possible amount of wax within a given space. They fail, however, to notice that there is no law requiring bees to build their preposterously little cells. If these were really intelligent insects, and knew the comparative value of wax and honey, they would build cells holding a pound of honey each, and thus enable a human being to eat honey without at the same time filling up the interior of his person with wax. This simple plan has never yet occurred to the bees. They go on building their antiquated and clumsy cells without once undertaking to improve upon them. They may be intelligent, but they do not improve it by adhering to a pattern of cell invented by their antediluvian ancestors.

To hold up these miserly and wantonly busy insects to the admiration of mankind is a positive outrage. Dr. Watts, who openly forbade all interference with dog-fights, was in the constant habit, when he met a bee, of politely inquiring, 'How doth the little busy bee?' thus treating the insect with a courtesy which would not be out of place if extended to a bishop. The pernicious influence of Watts in this matter has been widespread and enduring.

It is time that a protest should be made against the bee, and that mankind should henceforth be taught the plain and obvious truth that an insect which spends its whole existence in working and stinging is even more unworthy of emulation than is the mosquito or the book agent.—*Sporting Times.*

The Old Virginian.—And with all this material progress let us put it on record that the Virginian is still the old Virginian; and let us be thankful for that. He, with his solid notions of honour, truth, piety, purity, and hospitality, is a good anchor to the nation. This old Virginian, under whose solid mahogany I have had my legs, is building a barn. Every timber of this barn I have had to approve and praise for its solidity and permanence. His head is blossoming near the seventies, but he stumps and thumps everything with his big oak stick to see that it is 'solid! solid! solid, sah!' He is building a stone wall about his thousands of mountain acres, and, although he well knows he will never live to see it completed, he lays the foundation deep in the earth—solid! solid! solid! And his character, as well as those of his neighbours, seems to be quite as substantial. At breakfast one morning a bottle of honey, so called, was brought upon the table. Well, this 'honey' proved to be glucose. This good and grey old man had just finished saying grace. But he got up. He struck his fist in the air, and, I tell you, he fairly turned the atmosphere blue. 'In France, sah, that grocer's store would be shut up, confiscated in ten minutes, sah. He would be tried for adultery, sah. It means that you should not adulterate sugar, or tea, or coffee, or honey, or any of God's gifts to man, sah! Honey! honey! *That's not the work of bees,* sah. It's glucose; *sticky, stinking glucose,* sah!' —*Winchester (Va.) Times.*

Associations.

BRITISH BEE-KEEPERS' ASSOCIATION.

The agenda of business for the annual general meeting is now to hand. One or two important subjects are set down for discussion. Mr. Bligh (we presume on behalf of the Committee) will move certain amendments to the rules of affiliation, with the view of giving every affiliated association, whether county or district, representation on the Central Committee. It will be remembered that the alterations to the rules at the last annual meeting, giving the privilege of nominating an *ex-officio* member of the Committee to the County associations, was worded in the midst of a warm debate. As might have been expected of a scheme thus hastily drawn, difficulties have been found in its working. The fact of many of the representatives being members of the central body has been the means of abolishing the quarterly conferences formerly held between the representatives and the Central Committee. Under these conditions the position of those representatives who were not *ex-officio* members of the Committee has been a false one. No opportunity is given them for performing the task entrusted to them. It is now proposed to remedy this by exacting that only one representative of each affiliated association shall be appointed, and that he shall be a member of the B. B. K. A., and an *ex-officio* member of its Committee.

NORTHAMPTONSHIRE BEE-KEEPERS' ASSOCIATION.

The annual meeting of the above Association was held on Saturday afternoon, January 25th, in All Saints' Schoolroom, Northampton: Mr. James Francis presided over a small attendance.

The bee-tent, pitched by kind permission in the ground of the Agricultural Society on July 18th and 19th, was very poorly patronised. Mr. J. R. Truss, Ufford Heath, undertook the lecturing and manipulation, Mr. Tipler and Mr. Cox lending the bees. The annual show, held on August 21st and 22nd, in Abbey Park, Northampton, was considered to be the best show ever held by the Association. Mr. J. Francis, Mr. W. E. Stimpson, and Mr. J. Shaw kindly undertook the duties of judges. The number of subscribers for 1889 was sixty-four against sixty-eight for the previous year. The receipts from all sources, including 2*l.* 6*s.* 8*d.* brought forward, amount to 20*l.* 10*s.* 10*d.*, and the expenditure, 15*l.* 13*s.* 10*d.*

Lady Knightley was elected President for 1890, subject to her acceptance, and the following gentlemen as the Committee: Rev. J. Phillips, Weston Favel; Mr. H. Collins, Berry Wood; Mr. J. R. Truss, Ufford Heath; Mr. C. Cox, Brampton; Mr. H. Reynolds and Mr. W. Manning, Northampton. Votes of thanks were passed to the retiring President, Mr. W. H. Foster, C.C., and to the managers for the use of the schools.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 1st page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

NEW THEORY RESPECTING THE BEE-CLUSTER AND WINTERING OF BEES.

[48.] The enclosed table, showing the warmth kept up by bees in their cluster during winter confinement, speaks in a great measure for itself: still, it may be of interest to some of the readers of the *British Bee Journal* to learn what Mr. Lichtenthäler, a bee-keeper of Herdorf, and evidently a careful observer, has published in explanation of the same, and of his new theory as to what the requirements are to ensure safe wintering.

Besides a store of, say, 30 lbs. of honey, a strong colony is an essential point: but the colony *may be too numerous*, and in that case, as we shall presently see, a severe and prolonged cold may prove fatal.

The bees establish their winter quarters upon the combs next the flight-hole; it is here they surround the cluster with honey, both above and at the sides. When the thermometer falls below the freezing point, let us say, the necessity arises to increase the temperature of the cluster, and to that end a continuous movement is kept up, the bees *within* the cluster working their way out to provide themselves with a new supply of food, then striving to get back to the inner side: and finding the lower end of the cluster the least obstructed by their fellow-inmates moving out, it is here they work their way in again, and being provided with nourishment afresh, they are the better in a condition to descend to the lower and colder end.

Those parts of the comb on which the bees are closely drawn together are empty, the cells being filled with bees. In each cell a bee is housed.

When a mild spell sets in, the stores are replenished, the winter seal remaining where originally established, next the flight-hole.

Now, if a colony *is too large* for the size of the combs, sufficient space will be wanting at the top and sides of the cluster to place the requisite quantity of winter food, and the colony is lost. Winter passages above and through the combs no doubt are a great help in moderate, but in cold weather they are not sufficient to save a stock, for in many instances it has been

seen that the bees are unable to make use of them to reach their reserve stores, and are found starved and frozen with pounds of honey in the back combs.

As you will observe in the table, the bees follow the temperature outside more or less closely, never allowing the warmth of their cluster, however, to fall below 39° F., and this peculiarity suggests the second essential condition of a safe wintering, namely, that of a warmly packed hive; but not only well packed at top and back, the protection must extend as well to the sides, front, and below. Neglect in this respect causes condensation of moisture on such parts as are left without sufficient cover, and then it seems more than probable that, with the glass registering 15° F. outside, as was the case on the 14th January, the warmth of 54° F. in the cluster would be more easily produced and kept up in a well-protected hive than in one not so protected.

Cleansing flights on the 28th January, 6th, 25th, and 26th February, are the explanation of the high temperature of the cluster on those days, and to what extent friction in the cluster heightens the warmth was shown by tapping at the sides of the hive, the thermometer reaching into the cluster showing 50°. The first tap caused it, in the first minute, to rise to 55°, in the second to 61°, and in the third to 72°!

In conclusion, let me add that the readings as given in the table were taken from a thermometer whose bulb was carefully kept in the centre of the cluster, so that it may be taken as fairly showing the changes as they occurred.—AMATEUR, *Wiesbaden.*

[It gives us great pleasure te acknowledge the receipt of a very carefully prepared chart of the concurrent variations of temperature in the cluster and outside in the open air. We sincerely regret that at present we see no possibility of reproducing it for the benefit of our readers, owing to our limited space. If any plan can be devised, our readers shall benefit. May we express a hope that our correspondent will continue a frequent contributor? —ED.]

BEE-STINGS AND BEE-PLANTS.

[49.] Bee-stings as a cure for both rheumatism and sciatica I have used for many years. Sciatica left me for years after my application; I do believe I would be quite crippled from rheumatism now but for them.

Bees have been busy many days in January; the temperature was very high through the month. Yesterday (February 2nd) I saw pollen being taken in off the daffodil, crocus, aconite, furze, and Lenten Christmas rose. This latter is the best early pollen-supply plant I know of, as from its habit bees work on it at all times. I have a long bed of this plant, and on most uninviting days numbers of bees may be seen at work on it. A four or five-year-old plant is a fine object, and should cover an area of ten to fifteen square feet.—JOHN J. SMYTH, *Rathcoursey, Ballinacurra.*

'HOUSE APIARIES' AND 'A NEW DEPARTURE.'

(No. 20, p. 44; No. 28, p. 56.)

[50.] In olden times, when Mr. Abbott, sen., started the *British Bee Journal* (1870–73), I contributed a line or two, 'How German Schoolmasters taught the School-children Bee-keeping.' I was to have taken up the Secretaryship for a Yorkshire Branch of the Bee-keepers' Association, but my health failing, gave it up.

I had then a bee-house, containing forty German Dathe frame hives; they opened by doors at the end at the back; and some large straw skeps, long, not round, with sixteen frames of Gravenhorst, also German.

The two articles referred to above, No. 20 and No. 28, go hand-in-hand with my present arrangements in Kent now. I again have a bee-house, 10 ft. long by 5 ft. wide, leaving me 3 ft. of the width for my own use to work in. It holds eighteen hives upon three tiers, which are deep enough to allow room to double this number. This bee-house is heated by four rows of hot-water pipes, as referred to in No. 28, p. 56.

I thoroughly appreciate the German principle, the hives and manipulation, although the latter differs in one respect particularly from the English and American; but I am not over-particular. I pick up the best, to my mind, anywhere, from all countries, and mix up a little of each of Cowan, Doolittle, Gravenhorst, Weygand, &c.

The long straw skeps with frames are great favourites, because, like the common skeps without frames, they can be turned up and manipulated from the bottom. For this reason a wooden hive, called the 'Kaiser' (the imperial hive), I value as much. All its frames and dimensions are like any English hive; but it can be manipulated either from the top or from the bottom. The frames have no shoulders, and are held in position by four wire pins, two of which are on the top and the other two under the bottom bar of the frame. Each frame is easily taken out either from the top or bottom.

Not to disturb the crown packing in spring, which is so beautifully sealed down by the bees for the winter, these hives are *turned up* for spring manipulation. The frames, for the sake of exchanging, can be hung upon two wire nails in any English hive, of which I have a nice number more for outdoor in summer. I also keep a number of common cottager's straw skeps, without frames, of the large bushel size. I winter fifteen hives, and bring the summer numbers up to forty to fifty. In my younger years I used to go to the Whitby moors with a railway guard's van full, with sixty-five to eighty hives always—a lively night's work.

At the end of February or March I begin the *forcing* in my new bee-house, with the four rows of hot-water pipes (or, in hard winter's frosty weather, I fire a little to keep out frost only, on the cool green-house principle, and not to allow damp upon the walls to originate), and then begins the stimulative spring feeding.

In May, when hives are ripe for swarming and crowded with bees, the *doubling* above referred to begins. A second hive is placed below the present winter hive to receive the artificial swarm by putting the queen into this new one on the old place, with comb foundation and a frame with honey, where the old bees join her majesty. After some time the floor-board of No. 1 (the old hive) is replaced by wire cloth, not queen excluder; then the remaining brood-frames and newly hatched young queen are all put into a nucleus, No. 3.

After No. 1 and No. 2 hives' bees have been befriended, one being queenless, the wire cloth is taken away, and a reunion of a strong colony takes place; and if the remaining queen is a young one of the present year, it will not swarm again; therefore, when uniting No. 1 and No. 2, leave the *young* queen and take the older one, making a new colony with brood-frames ready for hatching out, but without any bees; or if with bees attached to combs, cage your queen. So much for the doubling and reuniting of very strong stocks, then follow the section crates on the top of all.

For straw skeps (common ones) for doubling, I use American cheese-boxes, with four or five regulation frames in the middle of each, which, again, fit into any other frame hive, or out of any one, if I want a frame with food in it, and they hang here upon two wire nails.

In the bee-house my hives stand direct upon the shelves without any bottom boards, and under each hive is a square of seven inches cut in the shelf, and movable, over which is a perforated wire zinc. When the heat of the warm pipes is on, the squares are taken away, and the warmth rises direct into each hive, acting at once direct upon the cluster of bees.

For winter the packing and the crown boards are screwed down lightly. All hives are balanced upon two pivots, one on each side, and a simple little machine lifts a hive a few inches, when it revolves up the pivot and is turned over, bottom up, for manipulation in spring, and when finished returned in the same way.

For reference as to state inside the hives, every one has a small slate attached. In warm summer weather I can remove nearly the whole of the front as well as the back of the bee-house, having all hives airy, but in the shade. In winter it is nearly dark inside, with the protection of the house all around. The hives, as the entrances are through 1½-inch tunnels, are very warm already, without fire-heat, and so comfortable appear the bees, that, even with 45° or 50° outside, no sound is heard. All is still inside; very few ever fly out.—J. G. K., *Grove House, Southborough, Tunbridge Wells.*

BEE-HOUSES.

[51.] Referring to letters Nos. 20 and 44, pages 44 and 71, on the above subject—nearly all the authorities on apiarian matters unite in condemning bee-houses as out of date, and not suitable for modern methods. I have had no experience of them, but a friend who has an apiary in Yorkshire has often told me that the four stocks in his bee-house come out best in the spring, are ready first for supers, and yield the best average of his ten or twelve stocks. He ascribed these facts to the equable temperature which he thought was kept up in the house, and to the heat from the stocks being of mutual benefit. Of course there are disadvantages attached to bee-houses, but in his opinion it was difficult to say whether the advantages or disadvantages predominated. He built himself a larger and commodious house some three years ago, and I believe the new one carries out the experience of the old, although, as I left the county about that time, I have had little or no opportunity since then of personally inspecting his bees. My object in writing this letter is to ask any readers of the *B.B.J.* who have had experience of bee-houses to let us hear what they think of them, as, like 'S. W. R.,' I have some intention of constructing one, built of wood, to hold four stocks, with the hives all on one level, and with doors opening at the back for manipulating purposes.—Ex-Ebor.

NAMELESS BEE DISEASE.

[52.] The writer of 'Assist the Impulse,' on page 50 of *B. B. J.*, is surprised that so few present themselves for certificates. I live about the centre of Berwickshire. Who will give me a certificate? Kindly say.

The Nameless Bee Disease.—My experience with this was as follows:—In June, 1885, I bought a swarm of Italians. All through the summer I noticed a few naked, shiny bees, which the other bees fought with and put out of the hive. In 1886 I got three swarms from this stock, and they all went into winter quarters strong, but still a few of these black, shiny bees; but in the spring of 1887 the old stock, with, of course, young queen, became ill in earnest, the front of the hive being strewn with their corpses. The queen was very prolific, but it was of no avail. About June 12th, when all other stocks were crowding into supers, it was only covering seven frames thinly. I sent some of the bees to the dealer from whom they were bought. He said they were all right; also to editors of *B. B. Journal* and *Bee Record*. One said they had got frosted pollen; the other, bad stores, such as honey-dew. Looking back over the history of the stock, I came to the conclusion that the trouble was hereditary. One of my other stocks having swarmed, I removed the queen of diseased stock and placed the whole of the brood-combs of the one that swarmed on the top of the diseased stock, queen-cells and all. In a few days they tossed out young queens, and in ten days the trouble had disappeared, never to return, I hope.

Ladies' Bee-dress.—If 'Beta,' on page 59, will send me her address, I will forward her the number of *Gleanings* in which Mrs. Harrison describes her bee-dress.—R. Douglas, *High Street, Greenlaw, Berwickshire.* [See p. 75.—Ed.]

BRICKS WITHOUT STRAW.

[53.] I remember as a child being struck with the tyranny of the Egyptians not being content with their bricks being made for next to nothing, but compelling their captive Israelites to find their own straw in the bargain. I little thought that I should ever find myself occupying a somewhat similar position, but as a member of the Finance Committee of the British Bee-keepers' Association I find myself so treated by my hard yet Christian taskmasters—the members and others whose names ought to appear in the annual list.

For some years we have been extending the work of the Association, with a success that may well repay my hard-working colleagues for their toil and anxiety as to where the funds were to come from to meet the ever-increasing demands suddenly thrust upon them: and in doing so I do not praise myself, for I think I have attended less meetings than any member during the past year.

The calls upon the Committee's time and the Association's funds have at last compelled me to appeal to our members to consider the work that has been done of late years, and compare it with the very poor subscription list—which, remember, is the chief supply on which the Committee have to depend.

Take this year's accounts, and with the subscriptions, amounting to 101*l.*, the Association has held the examinations, supplied judges' medals, quarterly meetings, the show at Horsham, the show at Windsor, which was the most important in many points of any annual show.

The Committee have been enabled to meet their engagements hitherto by the liberal response of a few to their repeated appeals for further help, and in this way we have collected nearly 60*l.*, besides annual subscriptions and grants. All honour to those who have so come forward and helped to extend the usefulness of the B. B. K. A. to the country at large: but it is to our annual subscribers I now appeal, and I boldly ask them to see if they cannot double their subscriptions, and so claim a greater share of the benefit the Association is conferring on their fellow-countrymen, and without so helping we miss one of the greatest pleasures this world affords. I know that some of our members do subscribe liberally, but I do hope that the 5*s.* subscription may bud into 10*s.*, and that many of the more prominent bee-keepers and others connected with the industry throughout the country may become members, so that we may not have continually to be whipping up the willing slaves when our tale of bricks runs short.—Henry Jonas.

SHALL WE GET OVERSTOCKED?

[54.] In reference to your article ('Assisting the Impulse') urging the increase of bee-keepers, you speak of a possibility of honey becoming plentiful and cheap. I think that would be so much the better for the general public, they getting a good, beneficial article at a cheap rate. But I think there is more cause to fear that in the great increase of bees kept there will be less surplus. In 1885 I had seven colonies, which gave me 350 lbs., or 50 lbs. per hive. I, like others in my neighbourhood, increased my hives to fourteen, but I got no more surplus in 1886. In 1887, with twenty hives, I got about the same quantity of honey, or about 18 lbs. per hive (the average for my county, Middlesex, was only 6½ lbs. per hive). In 1888, with twenty stocks, I only took 80 lbs., or 4 lbs. per hive; and in feeding-up in autumn I gave them 3 cwt. of white sugar. In 1889, with about seventeen stocks and swarms, I took 350 lbs., or about 20 lbs. per hive; and in feeding-up in autumn I gave them 2 cwt. of best white sugar. So, if you add the result of the last two years, you will find the feeding with white sugar was more weight than the honey taken. I have two more bee-keepers started, who seem to have got the bee-fever, so we cannot expect to get any surplus now except it is an extraordinary good year.

Now, Mr. Editor, I should like to know what number of colonies of bees you think could be kept profitably in, say, two miles' radius in the county of Middlesex? It is no use for a farmer to keep twenty cows if he has only grazing for ten; his milk would decrease in the same ratio his cows were increased. I myself have no idea of giving up bee-keeping at present.—A. M., *Middlesex*. [See p. 74.—Ed.]

FEEDER FOR CANDY.

[55.] A feeder I am now using with success consists of a shallow box without a bottom, made of half-inch wood, two inches deep and eight inches across both ways, with a sliding lid of glass which runs in a groove one-eighth of an inch wide, cut with a grooving-plane on the inner of three of the sides, the groove being one-eighth from the top edge. One side must be a quarter of an inch less in width than the other three, to allow the glass lid to slide in and out of the grooves. The way to fill: place the feeder, minus the glass lid, on a sheet of thin paper on a flat board or table; when the candy is ready, pour into the feeder nearly up to the grooves, leaving room for the glass lid to slide in. The candy will set fast to the sides of the box, and will not slip out, and whilst warm can be placed over the feed-hole on top of the quilts. Thus the progress of consumption can be observed through the glass lid without any heat escaping. The feeder holds about three pounds of candy, and when empty can be replaced by another warm one. It can also be filled with soft sugar, if preferred, by putting a piece of excluder zinc over the feed-hole, and then filling with the sugar. Cover all snug with the cushions.

I always leave on one of the lifts all winter, which gives plenty of room for packing. On account of the mild winter, great consumption of stores may be anticipated, and with this feeder the bees can be supplied with candy at any time instantly, without loss of heat, if put

on warm. The boxes can be made by almost any one, and the glass lids can be had cut to size at the glazier's, for not more than one shilling per dozen.—Robt. Haselhurst, *Hessle, East Yorks.*

A CHEAP FEEDING-BOTTLE.

[56.] May I offer a little help to those who would help themselves? As the time will soon be here for feeding our bees with syrup for stimulation, a very cheap and efficient feeder may be made of a screw-cap French plum glass jar, which holds nearly 3 lbs. of syrup at a time. A framework may be made of two pieces of wood and a piece of tin cut with opening as necessary. The holes in the cap of the bottle may be punched with a stout needle, and a part of a pin (with the head) may be soldered in a hole in the centre for the bottle to turn on.

Almost any one with a little spare time might make these feeders for their own use, as the wood can be bought ready planed, it being only necessary to cut it into squares, and send it to the turner's with instructions as to the sizes of the circular holes. The tin may be cut with shears, an indicator soldered to the cap, and a few nails will complete the feeder. A dozen such feeders may be made for an outlay not exceeding 4*s.*, the cost of two or three feeders if bought ready made. I will send dimensions and further information concerning the above to any one writing for same.

Now I should like to add a little respecting my bee-keeping experience. I commenced with one stock in the spring of 1888; but, as may be judged from the bad season generally, and my small knowledge of bee-keeping, I had scarcely any honey in return. The bees wintered well, and came out strong in the spring, yielding about 20 lbs. of surplus honey, as well as two good artificial swarms in the season of 1889. They all appeared strong and healthy when last I had an opportunity of taking a peep at them.—Fred. Hodgson, *Instow, King's Road, Kingston-on-Thames.*

SEASON 1889.

[57.] This was a fairly good season in this district. I have taken an average of 55 lbs. from my thirteen hives (some worked for comb and some for run honey), and had only two swarms. I made two exhibits this season, one at the Royal Counties' Show, of a large super, for which I gained first prize, and at a local show I also gained a first with a similar super. I re-queened all my stocks during the season, and have introduced some of Mr. Benton's Carniolans and some of Mr. Pagila's Italians, besides the ordinary blacks. The foreigners took kindly to their new quarters, and I hope to be able to send you a good report of their doings for 1890.—R. C. Blundell, *Benhams, Horley, Surrey.*

[Please address any further communications according to rules at head of this column.—Ed.]

Echoes from the Hives.

February 1st.—Examined hives, and found them all perfectly dry; lifted the quilts at one corner, and found in each case a good supply of sealed stores. My hives all consist, except one, of a large outer case and a movable interior one, containing the frames at right angles to the entrance, and the space between the outer and inner cases is packed with hay; hay also is placed above the quilts, and cork-dust cushions to a considerable thickness, and I think that this keeps the bees thoroughly warm and comfortable. Contrary to the custom of Mr. 'Useful Hints,' I never allow the entrances in winter to be wider than about half an inch, and even this is guarded by a stout pin, to keep out mice. I have tried this plan for many winters, and the result is that the floors of the hives, as well as the quilts, are perfectly dry—hardly a dead bee is to be seen, the consumption of food is marvellously small, and the number of bees alive in the spring seems to be almost as great as in the preceding autumn. I scarcely ever leave my bees with more than 12 lbs. of sealed stores in the autumn, and they generally have plenty left in the spring; but I think that the secret of small consumption of stores and slight mortality lies in narrow entrances and plenty of warm covering and packing. My quilts for winter consist of several thicknesses of flannel or soft carpet, the lower one being changed for American cloth as soon as the weather becomes warm—not before, as I have found that impervious quilts produce a considerable amount of dampness when the weather is cold. The covers of my hives are all hinged, and can be opened or closed without risk of any disturbance to the bees, and they are covered with calico, well painted. Having movable interior cases is a great convenience, especially in the spring, for you can by them lift out the whole brood-nest and clean the floor-boards without disturbing a single frame or moving the outer case. I wish your excellent *Journal*, my fellow bee-keepers, and the manufacturers of bee-appliances, whom I have found, generally speaking, very obliging, and who have had, I fear, a trying time during the past unfavourable year, a good time this year, better than ever before.—A Sussex Rector.

OUR HONEY IMPORTS.

The total value of honey imported into the United Kingdom during the month of January, 1890, amounted to 1066*l.* [From a return furnished by the Statistical Department to E. H. Bellairs, Wingfield House, Christchurch.]

When a man begins by declaring he has something to say to you 'in all love and kindness,' look out for cayenne-pepper and vitriol before he gets through. Honey in the mouth—a sting in the tail.—*American Bee Journal.*

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

J. J. K.—Uncapping the stores stimulates to a greater increase of egg production on the part of the queen when we 'spread the brood,' because it causes the bees to tidy up, and in doing so they feed more freely than their instinct would lead them to if left to their own devices. Newly built-out combs from full sheets of unwired foundation may be extracted from with care if the wire netting of the extractor is taut: if it has sagged much the combs may break. Wheat flour is not so good as pea flour for artificial pollen. Salt thrown on the ground around hives will destroy the weeds, will not injure the bees, but rather act beneficially.

Worcester Sauce.—Hope to assist you shortly. Thanks for suggestions, which shall be considered.

J. R.—Wax intended for foundation would not be whitened. The recipe on page 51 was for the benefit of those wishing to use wax for, say, candles or similar manufactured goods. Possibly the article on page 76 will meet your second difficulty: if not, oblige us with a further query.

Novice.—Do not attempt to transfer your bees yet. Due notice will be given in 'Useful Hints.' No specific date can be fixed: suitable weather must be waited for. We should advise you when such time arrives to transfer the frames containing any quantity of brood to the new hive, insert one of your correct combs in centre of brood-nest, feed *gently* and *regularly*: in about a week give another new frame of comb in centre, and so continue: this will keep all bad-fitting frames towards the outside of brood-nest, and they can be removed one or so at a time, as they are found to be free from brood. Should anything not appear plain, consult us further.

H. W. Taft.—By all means begin with the swarm. The distance is too short to remove an established stock direct. It could be managed: see reply to Mr. Marshall on page 72.

Thos. Palloster.—Please see reply to Mr Marshall on page 72. If you move them the short distance you cannot avoid losing them this mild season.

Honeytown.—This candy will do.

F. Cooke.—It is not alone the number of bees that govern the honey-producing capacity of a given country, but the flora *and* the weather prevailing during the honey season. It is quite impossible to give a definite answer to your query. The total quantity of honey *produced* in this country is not known, so that although we know the quantity imported and exported, this is not sufficient to answer your question. Again, your third question is too wide: results point to several districts as equally good. Plenty of clover, hawthorn, limes, and heather would comprise the prime factors in an ideal district, combined with a sheltered position. Freedom from drought and floods is also a necessary qualification. At present there are no wholesale markets for honey alone.

W. T.—We unhesitatingly recommend a beginner to start with a swarm in preference to a stock. We consider any of the ten-frame hives of the various first-class manufacturers equally good. We always abstain from recommending any particular hive. When ordering, state distinctly what you want, and you will find your requirements attended to.

John Smith.—Twenty-one sections are quite enough for a rack to put on the size hive you name. Your plan would not do—the outside sections would not get filled, owing to chills.

T. James.—White clover and melilot clover in spring. For extracting we should use thick foundation. Try Carniolans, if not too expensive.

G. Ball.—Two section racks per hive should be ample, but you should have some spare sections—they are cheap. With your sectional supers on skeps remove the sections individually as finished. We should expect to pay extra for all foundation comb supplied with a hive. Frames hang in the hive. Crates are for sending section honey by rail, &c. Racks are the receptacles in which sections (generally twenty-one) are placed when put on the hive for the bees to fill. When you know how, it is very easy to fix foundation in sections. It is expensive to have them fitted. Five minutes' demonstration is worth half an hour's reading on this point.

[All other queries next week.—Ed.]

Cleanliness.—Those who use movable floor-boards will find it very advantageous to give clean boards: the operation takes but a minute or so per hive, and one can to a great extent judge the condition of the stock by the appearance of the débris, number of dead bees, &c. Unnecessary manipulations are to be especially avoided in cold weather, but any help that can be given to reduce or prevent dampness is of very great service at this period of the year. Should the combs get mouldy, it takes the heart out of a stock to clear it off, which labour might be much better expended in brood-raising, as it doubtless would be. The old adage, 'Cleanliness is next to godliness,' holds good with regard to bee-keeping.

THE

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BEE-KEEPERS' RECORD AND ADVISER.

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Editorial, Notices, &c.

AN APPEAL.

The annual report of the B. B. K. A., just to hand, although cheering in many respects, especially so as regards the extension of our gentle craft, fails, on the whole, to be such a satisfactory document as the friends of the Association could wish. We refer more particularly to the falling off in finances. At this point we are met with the questions, Why is this thus? Have the bee-keepers of this country so soon forgotten the immense benefits which have been the immediate outcome of the benevolent efforts of the Association? So far as the older ones among our *confrères* are concerned, we cannot for a moment credit that *they* have ceased to take the deepest interest in the B. B. K. A., which has, during the last fifteen years, made profitable, and, at the same time, humane bee-keeping a practicable possibility. We are fully aware that many things, which were not the invention of our B. B. K. A., yet, having been introduced during the existence of the Association, have, upon trial, proved not only conducive to the well-being of our bees, but actual economisers of our time as bee-keepers. Had it not been for such a society, it is more than probable that many of these improvements would perhaps not have been invented, or, being invented, have either lingered in their crude condition, or expired from want of an opportunity of bringing them before the notice of the general confraternity of bee-keepers.

The new beginner, as he strolls through a well-ordered show, replete with every aid to the most scientific mode of bee-keeping, possibly gives but little thought to the patient labours of those who for years past have been plodding steadily onward, giving freely of their time, money, and *brains* to make such a show a possibility. Does *he* think enough of the glorious work of those who have preceded him? Many among them have absolutely died in harness, positively trying with almost their latest breath to promote the cause they had so much at heart. We can quite understand that the new members, finding the Association active in its duties and housed in such excellent quarters as those at Jermyn Street, fail to exactly appreciate the difficulty experienced by the B. B. K. A. in carrying out its self-imposed duties with that thoroughness which is imperative if the highest efficiency is to be attained. We trust that the continued kindness extended to the Association by the Society for Prevention of Cruelty to Animals, in allowing the free use of their room for meetings, will not be allowed to militate against the finances of the Association. Were it not for this free accommodation, every meeting held would entail such a serious strain upon the funds that the Association could ill afford, and which would further curtail its usefulness.

We feel so thoroughly assured that the present state of the B. B. K. A. finances has arisen from its wants and necessities not being fully understood. For this reason we abstain from considering what would be the result if, from any reason, the Association was compelled to suspend its labours. At the same time we feel it is our bounden duty to endeavour to impress upon all our readers the urgent necessity of considerably augmenting its funds. Each and every one of us would in some manner or other reap an increased benefit in return. We would have preferred to have argued the case on philanthropic grounds only; but we are aware that with many the *quid pro quo* argument is a powerful one, therefore we feel little hesitancy in appealing to this side of human nature. Many things of very great importance still remain undone. The B. B. K. A. is perfectly willing to do the work providing the funds are forthcoming. Let bee-keepers, one and all, show their great appreciation of the work, so

efficiently begun and so successfully carried on, by increasing their contributions, if their means will admit, and also by inducing their friends to become subscribers. So much of the work of our Association is of such an unostentatious character that it passes unobserved by many superficial onlookers, who fail to notice the solid worth of an Association which has as its aim the humane treatment of a most useful and wonderful insect, coupled with the increased production of a most beneficial food substance.

USEFUL HINTS.

During several of the warmest days of this unusually mild season the bees have been flying freely. This is in itself good, as giving the insects opportunity for evacuating material which a long imprisonment might render hurtful to them. Such exercise, however, on the part of a considerable portion of the hive population, naturally leads to increased consumption of food; therefore, in cases where there is a doubt as to sufficient stores still existing, it will be advisable to see if scarcity is imminent by gently raising the edges of the quilt. A fine warm day should be chosen for this investigation, and, if feeding is necessary, sugar cake or barley sugar should be quietly but quickly inserted under the top coverings of the frames. When the bees begin to show daily activity they may be supplied with solid food at the sides, or, when hives are worked on the warm system, at the back of the frames, by placing the material in cardboard boxes to which access is given by a hole in one side made to correspond with a similar aperture in the bottom of the back division-board.

Dead Bees.—Should any spell of cold weather occur there will be on the floor-boards an accumulation of bees which have died from old age. It may happen that the hive-entrances in such cases, where they have been too much reduced in size, become more or less blocked. In any case the bees who go on flight will expend much energy in carrying out the dead. To save them this trouble a quiet careful raking with a bent wire will be useful.

Hive-roofs.—Unless attention has been paid in the autumn to hive-roofs, there is danger of leakage through them, and consequently of damp coverings and mildewed combs, to say nothing of chill and disease for the stocks. We, therefore, again direct observation to this matter, because it involves an evil which, if neglected, brings cumulative mischief.

Levelling.—With winter rains the ground becomes so sodden that, unless the hive-legs or stands have been placed on bricks or large flat stones, there is a liability that the stocks are standing considerably out of the level. This should be seen to, and remedied, if necessary, with as little disturbance as possible to the bees.

Snow.—Snow very frequently occurs in February, and even in March. If it drifts into the hive-entrances it should be noiselessly removed. Should bright sunshine come any day while the snow is still unmelted, it is advisable to hang some material before the hives to prevent the extra glare of light inducing the bees to fly. Bright sunshine, with a chilly wind, makes a fatal trap to thousands of unwary wanderers.

Spring Stimulation.—Inexperienced and too eager bee-keepers will be wanting to begin spring stimulation, if they see considerable activity among the workers. We advise them to restrain their well-meant, but certainly mistaken, generosity to their bees. It is necessary to make as sure as is possible, in our climate of 'weather samples,' that the winter is fairly over before feeding with syrup is attempted.

Now is the time for looking to empty hives needing repair, before summer use: for inspecting filled combs put away for spring service, to see that they are free from damp and granulation, for having ready clean dry floor-boards, to replace those which have been in use all the winter and have become more or less damp, owing to the weather or condensation of moisture in the hive.

If our readers who have had long experience feel inclined to grumble at want of novelty in 'Useful Hints,' we would ask them to remember that this is essentially the beginner's column. As apiculture is continually extending, novices will more and more need to find in the *Journal* suggestions which, while very helpful to them, are trite and totally unnecessary for adepts in bee-keeping. Reiterated advice is, therefore, to be considered as addressed to readers who have become bee-keepers since similar 'Useful Hints' were last given.

Extracts.

THE MEDICINAL PROPERTIES OF HONEY.

The physiological effects of honey are singularly effective, though mild and passive in their character. It occupies a broad line between alimentation and therapeutics, being both food and medicine; therefore it belongs to that class of medicinal remedies that cure indirectly, that is, by putting the vital forces in such a condition as to enable them to overcome diseased action. Mineral waters, cod-liver oil, glycerine, malt, &c., all belong to this class of remedies.

Before speaking of the curative properties of honey we will note its physical properties.

In the first place, where is honey from? Some assert that it is a secretion of the bee, others that it is a natural product in plants. If it is a natural vegetable product, the laboratory would have furnished us, long ago, with genuine honey. It must be remembered that the sugar and glucose in the flowers and fruit that bees resort to is never honey until it has passed through the stomach of the bee—and please do not call this

organ a bladder, as some do. It is virtually a stomach, and performs the functions of that organ. The bee gathers into it a saccharine material. After its reception a gastric element is mixed with it for two purposes—one to give it the character of honey, and the other to make it assimilative for the formation of an oil, that is, perfect wax.

It is generally supposed that after a bee returns to its hive with its treasure, that it hurriedly dumps it into a cell and goes out for another, and so on. This is not the case; when the bee returns, from fatigue and under the stupefying influence of digestion, it has to abide its time, both to recuperate and to get rid of its burden of honey and wax. We have reason to believe that even after the honey is deposited into the cells, it has yet to receive the finishing touch of perfection by the bees, in all probability by the young bees of the hive. The young bees are active housekeepers in the hive; they live on the honey imported, and this rich, concentrated food demands an excess of gastric secretion; when coming to a certain point, it creates a regurgitation something akin to vomiting. This the young bee economically puts back into the cells, thus completing the process of honey-making. Another point as to the character of the bee's stomach:—As soon as it is unloaded, an insatiable sense of hunger and restlessness ensues, which at once forces the old bee to work abroad and the young at home. We all know how to respect the buzz of the hungry bee, and admire the sweet disposition of the one that has just finished a sumptuous repast. And how rare are family jars when the pantry is ever full. It is Nature's law, in all, the same.

We go more especially into these details, to point out the medical properties of honey. It has two physical elements that make it particularly a medicine, viz. (1) An aromatic irritant imparted to it by the stomach of the bee; (2) its ready transformation into fat, without those complicated physiological operations necessary to transfer other saccharine elements into this material.

These make it at once both a local and constitutional remedy. Locally, it is an irritant, sedative, emollient, detergent, antiseptic, resolvent, rubefacient, and a parasiticide. Constitutionally, it is nutrient, demulcent, laxative, deobstruent, alterative, tonic, expectorant, restorative, febrifuge, diuretic, diaphoretic, vermifuge, and antiphrodisiac, as well as containing certain poisonous properties manifested under peculiar circumstances.

When we say that honey is both an irritant and a sedative we mean that its first effects may irritate, followed with a sedative effect. All liniments work beneficially on this principle, the same with the most of eye-waters, &c. The solution of honey as an eye-water proves particularly beneficial on account of its antiseptic, absorbent, or resolvent properties. It cures inflammation of the eye in the way a solution of boracic acid does, that is, mainly by reason of its antiseptic and sedative properties.

The irritant properties of honey are, in a great measure, destroyed by dilution. Therefore as a topical irritant, where we wish to favour resolution by counteraction, it is used in a pure state or in conjunction with other more active irritants. It is its irritant or rubefacient effect joined with its emollient nature that precipitate local inflammation into suppuration, and is, therefore, a suitable remedy for abscesses, boils, whitlows, carbuncles, &c. Therefore, woe to the one that applies a honey plaster over an inflamed eye, in place of the solution! As a rubefacient and absorbent it makes an excellent local application in glandular swelling, and in chronic tumefaction, in particular when joined with iodine, iodoform, or mercury.

On account of the temperature of the body it is difficult to keep pure undiluted honey on the surface; this can in a measure be remedied by saturating layers of Canton flannel, and applying them, changing frequently.

I speak of it as a parasiticide not only in connexion with the theory of the pathagenesis of diseases as advocated by Pasteur, Cohn, Koch, Klebs, and others who have investigated the bacteria, but even those who created several skin diseases, well known by almost every one. Take honey for the destruction of the bacteria, because of its antiseptic, tonic, and laxative effects, its daily use would disarm every dire and malignant disease of its destructive force. Cholera, yellow fever, small-pox, scarlatina, and diphtheria may run their course as before, but comparatively in such a mild form as to afford but little anxiety. I only speak of honey as a preventive of malignancy in these diseases, and not as a curative agent.

I have reason to think that it may even serve as a prophylaxis in epidemic diseases. Last year Austin and vicinity were afflicted with an epidemic of dengue, prostrating nine-tenths of its inhabitants! My residence and apiary is two miles south from the city; and I suppose almost every one in our neighbourhood had the disease; however, my family and servants never took it, although we kept a daily communication with the city, and with persons having the disease. I cannot account for this exemption, which created a great surprise among our friends, unless it was the honey we ate almost at every meal.

The constitutional effects of honey cannot be fully understood and appreciated, except to study it from its medical properties, as represented above. All scientific investigation of remedies are made in like manner. It is the text to a long and complicated sermon. Every physician will read in it such a multiplicity of applications that would astonish the uninitiated.

As a nutrient I will not speak of it as food but in connexion with its properties that serve to arrest the waste of certain diseases, in particular in consumption. The important features of the medical properties of honey lie in the nutrient, expectorant, deobstruent, and restorative effects in the management of consumption

and its allied diseases. Now let us go back to a fact that exists in the process of making honey. No honey could be had if it were not for its ready metamorphosis into oil, or, in other words, in the making of wax, as stated. The great object in the treatment of consumption is to arrest waste. Therefore we resort to the use of oils or remedies that will readily make fat in the system. But the great difficulty in the way is to get the system to accept these remedies and effect their assimilation. Under Liebig's authority we give sugar freely to make fat, but the system often refuses it, as it does the oil, for before it can be assimilated it has to be changed into a glucose, or really into pretty much what honey itself is. This alone gives us a great advantage, in giving honey to stay the waste caused by disease, that we have in no other remedy.

Honey in being assimilated is disposed of in three ways:—What is not deposited in the cellular tissue as fat is consumed by the liver, and its volatile principle is eliminated by the lungs. This elimination is a matter of the greatest importance as a remedy in all pulmonary disorders. But the most remarkable feature of honey as a pulmonary sedative is its administration by atomisation and inhalation. The spray arising in extracting has been proved to exert a very beneficial effect upon cough and dyspnœa, thus revealing its curative tendency.—G. P. Hachenberg, M.D.—*American Bee Journal.*

RACES OF BEES.

My object being to make this essay practical will excuse lack of fulness in minute details. which otherwise should gain admittance in such descriptions. I shall, for like reasons, consider, at this time, only those races that are actually among us, and shall speak only of characteristics that are valuable either from the standpoint of profit or identification.

In the study of races which have been developed by nature and not man, we should always remember the environment. Where circumstances press hard, the law of natural selection, of necessity, produces greater excellence. We should expect, then, that the Carniolan bees, the Italians, the Cyprians, and the Syrians would each possess valuable characteristics. The crowded colonies, the restricted areas, and, especially in Syria, the frequent and excessive droughts, all combine to weed out the less prolific and the less industrious colonies. We might reasonably expect, then, to find in these races longer tongues, larger honey-stomachs, increased industry, greater endurance and prolificness, than in races of a less trying environment. I fully believe that a close study of the surrounding conditions of each race would quickly explain peculiarities of structure and habit. Thus, I believe we may easily account for the irritability of the Cyprian and Syrian races, by simply studying their history; and, likewise, the amiability of the Italian race and the Carniolans.

I think, too, that this explanation would explain the speedy change of disposition of the Syrian and Cyprian bees as they are handled, and their temperaments studied and humoured. The Syrians are remarkably quiet and inoffensive unless disturbed, and I found that very soon upon domestication the angry mood ceased to come with handling. In our study of races, this law of change through environment should always be kept in view.

In describing or studying races there are some parts that are especially important. The colour and hair-covering of the thorax are to be noted. The rings of the abdomen are also important. As is known, there are six rings, or segments, to this third or posterior division of the bee's body. This is true of both the workers and the queens. The colour of these several rings, and the colour and amount of hair that they bear, are valuable aids in identifying the separate races. Usually there are four rows of plumose hairs—a row to each of the rings, if we except the first, or the one next to the thorax, and the last, or the one at the tip of the body. Often the colour of these rings of hair, as in the case of the Krainer or Carniolan bees, is the most ready means to identify individuals of the race.

The Black and the Yellow Bees.

Before I speak of the separate races, let me state that we may divide our common honey-bees into two types—the black and the yellow bees. To the black bees belong the common German bees, and varieties of this type, such as the Carniolan, heath bees, &c. These are the European bees *par excellence*, and are peculiar in coloration and habitat. It is very possible that some of the African races are derived from this race. Of these we are practically, at present, only interested in the German and Carniolan bees, and so I shall only speak of them in fuller detail.

The yellow races are very well fixed. Whether they should rank as varieties of one race, or as separate races, is a question. If their characteristics of colour and habit are persistent, then each is a race. I am inclined to the opinion that this is the case. Such questions, however, are not very important, as our present philosophy simply makes species, races, and varieties a difference of quantity in variation and fixity of characteristics. Time solidifies a variety—if we may so speak—into a race, and with longer time the race crystallises into a species.

Of these yellow races—we will call them 'races'—I shall only consider the three which are at present in our American apiaries, and are exhibited at our fairs, viz., the Italian, Syrian, and Cyprian.

The Black or German Bee.

This bee is so well known that I should not pause to speak of it were it not that it will form a good standard for comparison.

We may say that the German bee is large, grey-black—the queen is obscure brown beneath—and irritable in disposition. The colour, black,

is due to the body, which is shining black, as may be seen in robber or diseased bees, where the hair is gone. The grey is due to the rows of hairs, which are light in colour, and so, with the black, dark ground, give the grey-black colour familiar to us all in these German bees.

The tongue of the black bee is shorter than that of the yellow races. Their irritability makes them unsuited to the beginner, though, with the bee-tent and other improvements, the experienced apiarist would not mind their ill-temper.

It is often said that German bees are more prone to rob than others, and less energetic in defending their hives. The first may come from idleness, consequent upon their shorter tongues; the latter from strength of colony, consequent upon their moderate prolificness. Their restless nature is well known, as their disagreeable habit of rushing about the comb, and falling from it, are too evident to escape attention.

It has been claimed that black bees are more hardy than are the yellow races. Quite likely the fact that black bees are more likely to be in box hives, where the attachment of the combs direct to the walls of the hive gave a certain protection in severe winters, gave rise to this opinion. Whether true or not, this is no very essential matter; for, granting superiority, it is not sufficiently pronounced to remove the necessity of protection, and with protection and proper care all are alike safe.

That German bees produce very white comb honey is, beyond question, true. A little thicker capping, or a little greater separation of the caps from the honey, though really a small matter, is in fact a matter of much importance. Indeed, it may be that which sells our product. In this case a little added beauty may be the 'taking thing.'

Apiarists, long ago, noted that black bees are a little more ready to leave the brood-chamber and store in the sections placed in a chamber above than are the yellow races. With the neophyte, this quality would count; with the experienced bee-keeper, who has learnt the best skill of the art, this counts for much less.

If we except the white cappings, and the readiness to store in the surplus chamber, we we may say that in every peculiarity of structure, temperament, and habit, the German race is inferior for the practical work of the apiary.

It is easy to see why the German bees are inferior—their home is the cold Northland, where winter's cold and merciless grasp, ever and anon, crushes out the bee-life, destroying all but the most vigorous. Thus the increase is limited, and natural selection does not act with the severity that it does in the more favoured tropics. Thus we easily see why the black bee is less developed in the direction of rapid production than are some of the other races.

It remains to be said that the German bee, crossed with any of the yellow races, produces a bee much superior to itself. Cattle and horses are bred for different purposes, and so crosses produce confusion, and cross-breeding has little to recommend it. With bees it is not so. All races are for the same purpose, so there is no objection to crossing; indeed, it seems more than likely that the bee of the future will be a hybrid bee. If so, quite likely the German race, or some of its varieties, will enter into the combination.

The Carniolan Bees.

These bees are certainly a well-marked variety of the German race. Their characters are so well marked and so fixed that it would be no great mistake to consider them a race. Indeed, some very good authorities regard them as a distinct race. If I mistake not, Mr. Frank Benton thus regards them, and surely few are better prepared to judge correctly than he is.

Whether we consider them a variety or a race, I think there can be no doubt but that they are an offshoot from the common black bees. More amiable than the Italians, and with 'business habits'—if we may use the expression—equal to the best of the yellow races, no wonder this bee has so rapidly grown into favour in both Europe and America.

We may well quote Shakespeare's 'Sweet are the uses of adversity,' for here, again, hard circumstance has resulted in an improved variety. The winters of Austria are mild; the region of Krain is isolated by lofty mountains; thus, with redundant bees and restricted forage, we have all the factors of rapid progression. In Austria, as in Italy, the bees have been manipulated, and thus the angry temperament has been subdued.

The Carniolan workers are not only very large, but the abdominal rings of hair are very plainly marked. The hair is light grey, so that the bees seem distinctly banded. The colour of the abdomen is greyish black, or dark drab, and so it is not so black as the typical German bee. The wings are large and strong. Thus the colour of the Carniolan bee, and the light rings of hair, are the distinguishing characteristics.

The drones are also grey, hairy 'fellows,' and very robust of body and wing.

The Carniolan queen is very large—larger perhaps than the queen of any other of our domesticated bees. As is well known, while the common black queen is very black above, she is bronze-coloured beneath. The typical Carniolan has this rich bronze colour for the entire abdomen. The queens vary not a little; some are nearly as black as the German queens, and sometimes the bronze is almost as golden as the brightest Italians. Mr. Benton says that a faint yellow or rust-red band sometimes shows in both queens and workers. The thorax is thickly set with grey hairs.

The variation in queen and workers would argue for variety *versus* race; yet we must remember that the range in variation of Italians is nearly as great.—A. J. Cook, *Agricultural College, Mich.—American Bee Journal.*

(*To be continued.*)

Associations.

DERBYSHIRE BEE-KEEPERS' ASSOCIATION.

The ninth annual general meeting of the Derbyshire Bee-keepers' Association was held at the Town Hall, Derby, on Friday, January 31, Mr. J. L. P. Barber, C.C., in the chair.

The annual report stated that the Association had reason to be proud of the grand display of honey at Derby this year. The exhibition was eminently successful.

Mr. W. Handby, expert for the Northern Division, reported: 'The season has been a good one for honey, bees having done well in most places. Some of the members have averaged 100 lbs. of honey per hive, besides increasing their stocks. Total of spring and autumn tours, 320 visits; examined 1204 hives in 39½ days.' Mr. W. Coxon, expert for the Southern Division, reported having made 176 visits in 22 days in the spring, and in the autumn 96 visits in 14 days, visiting 347 hives, 98 skeps, and 249 bar-frames. He added: 'I am pleased to report the summer has been a good one for honey; swarming, too, has been plentiful, and notwithstanding the heavy losses during the winter months, the prospects of bee-keepers seem to have improved. The honey was sold at remunerative prices, and there has been a brisk demand for swarms.'

WIGTOWNSHIRE APIARIAN ASSOCIATION.

The annual meeting of the above Association was held in the 'George' Hotel, Stranraer, on Friday, the 7th inst., the Rev. A. Duff Watson, of Inch, in the chair. The statement of accounts submitted showed a small credit balance. The prize list was drafted for the show to be held next September. Nearly all the classes will be open to the United Kingdom. Substantial money prizes will be offered, in addition to special prizes for cottager bee-keepers, and a frame hive for three one-pound jars of extracted honey. It is also intended to arrange for a driving competition, and practical demonstration of bee-management at this show. It is proposed during the year to give instructive lectures throughout the county. The Rev. J. B. Robertson, Leswalt, was again elected Hon. Secretary, and Mr. W. McNally, Hon. Treasurer for the present year.

NOTTINGHAMSHIRE BEE-KEEPERS' ASSOCIATION.

The annual meeting was held on Saturday, February 1, in the 'People's Hall,' Heathcote Street, Nottingham, Viscount St. Vincent in the chair. There was a very large attendance. The annual report was very satisfactory, no less than 68 new members having joined during the year, the total number being 121 now, as compared with 83 on December 31, 1888.

The balance-sheet showed total receipts 48*l.* 12*s.* 7*d.*, compared with 25*l.* 10*s.* 6½*d.* for 1888. The expenses amounted to 47*l.* 2*s.* 11*d.*

The season just passed had been a fairly good one in Notts, although very short, several members having obtained as much as 100 lbs. from one colony, while one had reached the remarkably good total of 206 lbs. from one stock. Experts' examinations have been held in both second and third class, two members receiving third-class and four second-class certificates. After the report and balance-sheet had been adopted, about sixty members sat down to a splendid meat tea.

Viscount St. Vincent was elected President in place of Lord Newark, M.P., who became a Vice-President.

Viscount St. Vincent in his address alluded to his own experience, which he described as not theoretical but thoroughly practical, having an apiary of twenty-six stocks, which he attends to himself, including making his own hives. Having made a humorous allusion to the 'pigheadedness' of some of the old school of skeppists, he regretted that the railway rates question would have a bad effect upon modern bee-keeping.

The annual prize drawing then took place.

Mr. H. R. Fisher, of Farnfield, read a paper on the 'Enemies of Bees,' followed by a discussion.

OXFORDSHIRE BEE-KEEPERS' ASSOCIATION.

The annual general meeting of this Association was held on Wednesday, February 5, at the 'Clarendon' Hotel, Oxford. The chair was taken by Colonel Ommaney.

Mr. Harris explained that some difficulty had arisen in consequence of the British Bee-keepers' Association having refused to forward the medals won at the recent shows of the Oxfordshire Bee-keepers' Association. The Hon. Secretary had written to the Secretary of the British Bee-keepers' Association (Mr. J. Huckle) in reference to the matter, and had received a reply stating that the Committee regretted they could not grant the medals on the grounds of the rules not having been complied with.

The balance-sheet showed the receipts as 26*l.* 6*s.*: the expenditure, 35*l.* 15*s.* 10½*d.*, leaving a deficit due to the Association of 9*l.* 9*s.* 10½*d.*

In the annual report the Committee regretted the position of the Society was not so satisfactory as might be, there being a considerable falling off in the net number of members. In conclusion, the Committee reported the resignation of the Rev. F. C. Dillon, who had been Hon. Secretary from the foundation of the Association. Mr. Dillon was leaving the county, and it was, therefore, impossible for him to act.

A considerable sum was subscribed by those present towards the deficit in the balance-sheet.

At the close of the meeting Lord Jersey appeared, and generously contributed to the deficit, and also presented a hive for the annual draw, which was won by Mr. Golden, Stoke Lyne, Bicester.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 1st page of Advertisements.)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

BEE-HOUSES.

[58.] Well, Mr. Editor, I see you are going in for a little, or much, talk on bee-houses. Now it so happens I have this kind of thing; and, moreover, use and have used the same near twenty years. I could not well do without it in the corner of my garden, the front faces south, and the entrance-door east. The front is boarded, except ten inches near the top, which space has wire netting across, and bee-proof. Over this is hinged a board, or shutter, which in winter is kept fastened, and in summer opened at will. In the front are eight entrances and alighting-boards for bees (four below and four over). The roof is of wood and glass; that is, the centre consists of a glass and framed sash, four feet wide. The house holds eight bar-framed hives, each on its own bottom-board. Formerly I worked with the Woodbury super; now with one or two sets of sections on the stocks. I have at this time eight stocks in the house, and my glass-framed hives at all times afford pleasure to visitors, for here they can watch this very wonderful insect in its home without fear of flying bees, which are apt to use their rapiers with small cause at times; for, you see, I have always a number of stocks out in the garden on stands (at the present time fifteen such). Now, when studying the bee some twenty-five years back, and manipulating stocks, &c.—*i.e.*, carrying through Langstroth's experiments, &c.—I at times felt the want of an enclosed shed or house, hence my house; and although now occupied with eight, I do not usually have more in than five or six.—J. C. C., *Northamptonshire.*

BEE-HOUSES.

[59.] 'S. W. R.' (44, page 71) will find such a shed as he suggests answer his purpose admirably, but he must not forget plenty of ventilation for the very hot weather, and also, if possible, make provision for the sun to shine in on the hives once a-day.

I have used a bee-shed for three years. I find it answer well, especially as in it I can manipulate earlier in the morning, before I go to business, than I can do out of doors. The hives are set north-west, the only way I can have them; and they seem to do as well as the hives out of doors in a better position. My hives are fixed separately on shelves nailed to four light posts sunk into the ground, and quite independent of the shed floor-boards. I leave a space of half an inch between hive legs and shed floor-boards, which space is covered with strips of thick felt, such as is used by saddlers, tacked to floor, and to fit close up to hive legs. There is thus no jarring of hives when walking about the shed, or opening and shutting door.

The tunnels for entrances are put through the wall of the building on the same principle. I have the hive floor-board fast to hive, and projecting about nine inches in front. I form a square tunnel, covered with either glass or board. I find board the best, and have it fastened down. I fix slides to regulate the entrance close up to the hive, and which can be handled easily inside the shed. I then cut a square opening in the shed wall, half an inch larger than outside of hive tunnel. I then nail strips of thick felt around this opening on the inner wall, to fit close up to the tunnel. This quite prevents outside bees from getting into the shed, and also quite hinders any vibration of the building from affecting the hive.

You can slide the hives in and out of the opening easily. You can fix a porch outside over the entrance. My building has three windows, and out of the bottom of each bottom pane is cut a strip three-eighths of an inch deep for inside bees to escape through. I used to have it at the top of the window, but I find the bottom is the best. There is one defect in this plan: sometimes outside bees will get in this way, and especially wasps.

If you have only one window, and that a revolving one, you will easily release insiders, and prevent outsiders from getting in.

I find they do not eat so much food in winter as those out of doors, and are much quieter to handle. I have a loft above in which I keep empty hives, crates, &c.—SAMPSON WHITE, *Bleasby, Southwell.*

BEE-HOUSES AND EXPERIENCES.

[60.] Replying to 'F. G.' (letter 20, page 44), and 'S. W. R.' (letter 44, page 71), respecting bee-houses, I beg to give my experience, and in doing so will also intermix a little of my experience in bee-keeping from the time I commenced to keep bees. I got my first hive in 1882, a swarm that season in a straw skep. The next season I got two swarms, which I put into single-walled frame hives. Having a wooden erection eight feet long, six feet high at the back, four feet at front, and five feet wide, I converted it into a bee-house. I got my bees into it and nicely packed up for winter. All went well until February, 1884, when, during some very windy weather, my bee-house was blown over, bees and hives along with it. When

I arrived upon the scene the frame hives were upside down, the combs thrown out and broken, some into three or four pieces, the bees still clinging to them. The skep was on one side, but no worse. Well, I put things right again as well as I could, but I lost the frame-hive bees; but the skep I saved all right. So much for keeping bees in skeps, for I would have lost all mine then if they had all been in frame hives. After this I drove into the ground some strong stakes, one at each corner, and tied some ropes over the top to make it secure for the future, so that it was not blown over again while I had bees in it.

I could get five hives into my bee-house. From my experience I think the disadvantages of bee-houses are—the liability to blow over, unless in a sheltered position; they also harbour vermin, moths, mice, &c., very much more than outside. I have had mice build their nests on the top of frame hives whilst in the bee-house.

I found my bee-house very convenient for storing hives, section cases, and many articles which we bee-keepers use in manipulation; but where a person's garden is adjacent to his dwelling, and he has plenty of convenience therein, I would say keep them there in his dwelling, as they can be kept in a better condition than in a bee-house. For keeping bees in skeps keep them in a bee-house; and to any person who is in comfortable circumstances and feels that he is likely to reside in one place for years, or perhaps for life, I would say get a bee-house for frame hives, for then they would only need to be single-walled, and no need to spend labour and money for roofs. But any one who may be under the necessity of removing, say, every two or three or four years, as the case may be, or those who make a practice of taking their bees to the heather, then I would say have double-walled hives with cottage roofs, and keep them outside. I have now done away with my bee-house and have all my stocks outside; but I have not done this because I think it better to keep them outside, but because I changed my dwelling sixteen months ago, and the old bee-house being rotten would not take down and put up again. I also do not feel settled in my present dwelling, and decided not to put up a new one, yet I may shortly put up another if for nothing else than to keep the skeps in. There is one thing that tells heavily against a working man putting up a bee-house, and that is, the cost item. He may manage by degrees to raise himself ten or twelve frame hives with cottage roofs, whilst he is unable to purchase a bee-house.

The fact of my bee-house being blown over does not say that everybody else is in the same danger; of course, readers of the *Journal* must judge for themselves as to whether their bee-houses are in the same danger or not. I know it is a lesson I shall always remember. This is my experience; perhaps some more of your readers, Mr. Editor, will give us theirs, that we may compare notes and see how far they correspond.—J. Fenwick, *Waterhouse, Durham.*

CASTS COMMENCING TO BUILD FROM COMB.

[61.] I have been very interested in the discussion of above subject in your *Journal*, and think an experience I had last summer will prove that even Mr. Webster is not right when he asserts, 'Bees accompanied by a virgin queen placed in a hive, minus any artificial aid, commence to build drone comb, and *continue* so to do until queen is fertilised.' Now, my experience proves that they commence to build drone comb, but certainly do not always *continue* to do so until queen is fertilised.

Now for the facts. One day last summer, whilst busily at work in my apiary, I saw a cast issue from a straw skep, and after circling round, settle on the ground not more than two yards from parent stock. Being busy just then, I propped up a skep close to them, and guided a few bees to it, when they were soon all in, and after setting on a stand, took no more notice of them (except to turn up skep next day, when they were all at work at sides), until, in passing a fortnight after, I was surprised to see a small cluster of bees on the ground in front of hive, and, on examining them, was surprised to find the queen in their midst, minus a wing. This at once explained to me why they had settled on the ground. It was evident the queen had lost her wing in conflict with the bees or another queen, and therefore could not fly. It was also evident she had not been fertilised, for not an egg, or any sign of brood, was in the combs, and it was plain she had fallen to the ground in trying to fly to meet the drones.

Now comes the part that I think will most interest your readers, as here I had a queen heading a cast, and not fertilised, owing to an injury, for a fortnight. The question will naturally arise, What were the bees doing during that time? Well, seeing the queen was useless, I at once pinched her head off, and drove the bees, placing them in a frame hive with a ripe queen-cell, where they have since done well, and turned my attention to skep and combs, and found where I had first noticed the bees at work at the sides was drone comb, and reached to within a few inches of the bottom. The centre was also full of comb, and of the same depth, but was all worker comb, thus showing that even with an unfertilised queen they would not build drone comb in centre of skep.

I am not enough of an expert to know if they would always do the same, but I certainly know that Mr. Webster is wrong when he says they will *continue* to build drone comb until queen is fertilised.—W. N. Ley, *Easton, Stamford, February 10th*, 1890.

NATIVES *VERSUS* FOREIGNERS.

[62.] I read the letter of Mr. Blankley, Denton, Lincolnshire (No. 39), with considerable interest. The time undoubtedly has arrived when the *pros* and *cons* of various species of bees should be tabulated. I suppose I am debarred,

being an East Anglian, from giving you my name as ready to enter the contest he proposes; but please, sir, let me fight it with the 'Liguban' sword of the English bee. I have kept Ligurians now for fifteen years and more, and am at last thoroughly disgusted with them. Pretty! yes, beautiful they are, no doubt; but it surely ill befits a modern bee-keeper to prostrate himself before the idol of appearances. Beauty is what beauty does; and as sure as there must be one boy at the bottom of his class, my Ligurians have always been behind the English, and that, too, in spite of greater attention. They lack animal vitality.

ell do I remember friend Baldwin a few years ago (I believe at Yarmouth) getting, or rather trying to get, a swarm of certainly the most beautifully marked of their kind I had ever seen into a unicomb hive during a shower of rain; the fools *wouldn't* 'move on,' but crouched like a covey of partridges beneath a hovering hawk. 'The blacks,' under such conditions, would never have lost heart, but, like the marshalled host of Israel led against Jericho, 'Every bee would have gone up straight before her.' 'Tis easy to be good-tempered and smile while basking in the sunshine of prosperity, but give me the bee that will do the most amidst the clouds of comparative adversity, and that bee is the bee of Old England, who is also the survival of the fittest.—Alf. E. Booker Hill, *The Chase, King's Lynn, Feb. 10th.*

STARVATION SWARM.

[63.] I enclose cutting taken from London *Echo*, February 10th. Surely this must have been a starvation swarm.—F. J. Cribb.

'Bees Swarming in February.—While a young man named Flint was engaged in the fields, at Tempsford, Bedfordshire, one day recently, he suddenly heard the humming of bees, and on looking round he was astonished to see a splendid swarm of bees, which had alighted on a shrub. The youth's father is an amateur bee-farmer, and being himself quite an expert he soon obtained a hive and secured the whole swarm, which is said to be a fine one. It was subsequently presented to a labouring man residing in the neighbourhood.'

THE NAMELESS BEE DISEASE.

[64.] I was much interested in reading the letter on the above by H. D. Stewart on page 54, *B.B.J.*, and thought a few words on the same from another sufferer would be acceptable to your readers. Although I have been a bee-keeper for nearly twenty years, no disease of any kind troubled my apiary until last spring. I then noticed (in what had been my smartest and strongest stock in 1888) the symptoms recorded by the above-named writer. I sent some of the bees to be examined, and was told in this *Journal* to replace queen and cleanse hive. The latter had already been thoroughly disinfected, but appeared useless. The stock seemed worse in times of low temperature. As the queen was reared in 1888, and being exceedingly prolific, I failed to see the fault in her. They continued in this state through the summer, giving no surplus or swarm; however, towards end of season the black, shiny, hairless inhabitants began to decrease, and when I closed up for winter was seemingly in good trim, and is so now, in 1890. Thus, you see, by leaving them alone they became self-cured. I hope, however, the coming spring will show no signs of this peculiar disease, the cause of which seems difficult to ascertain. The mother of queen was Ligurian, imported from one of our queen-rearers, and perhaps by infusing new blood the effect was bad. It may be traceable here. Shall be glad to hear of the cause, if such can be found.—P. Tonkin, *Padstow.*

THE PLYMOUTH ROYAL SHOW.

[65.] All Cornish and Devon bee-keepers should try to make the above a success; if the season be favourable, it will give us the *rare* chance in the *West* to compete in the honey department. Prizes for small apiarists may be few; lessons taught (by viewing modes of staging, &c.), however, will be many. So let us, 'one and all,' try during the coming season to make another stride on the road to success.—Peter Tonkin, *Padstow.*

EXPERIENCE OF A YOUNG BEGINNER.

[66.] I started bee-keeping with one stock of hybrids in 1888. The bees came out well in the spring, but, alas! the year 1888 was one of the worst on record. Consequently no honey was taken in our parish. I removed my section crates in July, and I immediately commenced feeding. About this time my friend and I were asked to drive a few stocks for a cottager. We told him he would have no honey, but he only laughed, and said the hives were full, and the old-fashioned way was the best. We drove his four stocks; instead of finding hives full he only had about six pounds of honey from the lot. This bee-keeper lost all his bees before Christmas, notwithstanding our warning him to feed. My stock went into winter quarters strong, and came out well in the spring of 1889. I had a twenty-one crate in full work in the third week in May, but it was suddenly stopped by the heavy hail-storms which visited the Midlands about that time. I had a few sections by June 1st, which I exhibited at our local show, and took second prize. I had a five-pound swarm on June 2nd, which I sold for 14*s.* 6*d.* I now had to change my residence. I heard my bees sent out a cast a few days after, which was sold for 5*s.*, also that the old stock was very weak, and had only one queen-cell left, which, however, came out all right. I then had them sent to me at South Norwood, and worked them up strong for winter. I had 30*s.* profit from one stock, which I think good, but I hope to do better next year. I always follow 'Useful Hints' given in the *Journal*, which leads to much success.—G. Stanley.

PRESERVING FRUIT IN HONEY.

[67.] My first experience in preserving fruit was over forty years ago. We boys used to get the winter picks off the bushes and bring them home for pickling, as mother used to call it. We used to fill the jars about three parts full of picks and then fill up with sugar; but it was far different from what we get nowadays, being more like wet black sand. Loaf sugar then was eightpence or ninepence a pound. Mother used to put about a shillingsworth of rum or brandy to two gallons of fruit, and cork all tight. They used to come out first-rate at Christmas. About two or three tablespoonfuls of the fruit is a certain cure for diarrhœa.

When I left home I started bee-keeping with one hive—not the same as people do nowadays, with forty or fifty stocks when they cannot manage one. One is plenty to begin with. After the first year I had honey to spare, so I thought my honey would be better for pickling the winter picks than the sugar. Then I tried better fruit, such as currants, gooseberries, damsons, sloes, plums, and grapes, and the last four sorts kept the best, but the grapes best of all. Currants will not keep—they spoil the honey as well. The grapes and damsons have kept well; in fact, I cannot say how long the grapes would have kept if I had left them alone.

In the first place, the fruit should be ripe, but not too ripe. Great care must be taken not to bruise the fruit; the stalks should be *cut* off close to the fruit. Put the fruit very carefully into the bottles. Avoid breaking the skins, or fermentation will begin. When the bottles are full get new extracted honey, and if not too thick pour it on the fruit until it covers all the fruit, then fasten all down tight. Cold honey is best. Peaches, nectarines, and apricots I have never tried, for this reason, they have always grown beyond my reach.—An Old Sussex Bee-keeper.

ANOTHER NORTH YORKSHIRE EXPERIENCE.

[68.] Having read the experience of 'A Country Ropemaker' in the *Journal* of Feb. 6th, I will with your permission give your readers mine. I also live in a cold part of North Yorkshire, about three miles from the Cleveland Hills. It was in 1887 that I first commenced bee-keeping. A friend of mine bought two skeps, and I used to go and sit with him in the garden, and watch them fly, and I also caught the fever, so I started and made a wood hive, standard size, and bought a swarm which gave me twenty-four well-filled sections. Our village doctor, who has a good knowledge of the modern system, gave me a lot of old *Bee Journals*, which I read with great interest, and from then I started to take the *British Bee Journal*, which has helped me through many a difficulty. I may say, Mr. Editor, that I am so fond of the *Journal* that I wait every Friday morning for its arrival with great eagerness. I also sent for Mr. Baldwin's *Catalogue and Instructor*, which contains some good instructions. I may say I also have *Modern Bee-keeping*, Heddon's *Success in Bee Culture*, and *A Modern Bee Farm* by Simmins. I also have read the *Bee-keepers' Guide-book*, and Webster's book, &c., which I have studied with great interest. In the spring of 1888 I bought one skep and two bar-framed hives, which were all short of food, so I proceeded feeding with thin syrup. The result of this season was, I never got a pound of honey, but had to feed all summer, and then in the autumn fed them up for winter. I had no swarms this season. The season of 1889 I had three swarms, but owing to my absence from home I did not receive such a surplus as I would have done if I had been at home, but on the whole I did very well.

In this district we have two harvests, one from the clover, &c., and another from the heather; the heather honey commands the highest price, and in a good season is our main crop. Our part of North Yorks is not such a poor honey-producing part as that of 'A Country Ropemaker's,' as I have known our Doctor take 100 lbs. of honey in sections in one season off one hive—of course, including the heather as well; so I think that is not so bad.

This year I intend to work shallow frames instead of sections, and I have bought a Raynor extractor to extract them with. I am quite of the same opinion as Mr. McNally with regard to a national competition of honey in small quantities. I think it would be a very good thing to draw bee-keepers of all classes together in friendship and also increase their knowledge of the craft. I should like to see some more North Yorkshire experiences, as there are a good many experienced bee-keepers in this part. I think they could interest your readers more than—A Country Bricklayer.

MEAD.

[69.] In looking over an old work on cookery, by 'Farley,' I noticed a recipe for making mead, which I enclose, thinking it might interest those of your readers who may have surplus honey desirous of putting to good account, and who rejoice in having a good mug of that which cheers to offer their friends.—R. R. Godfrey.

'As the following directions for making mead wine were communicated by a lady, we shall give them in her own words:—To 120 gallons of pure water, the softer the better, I put fifteen gallons of clarified honey. When the honey be well mixed with the water, I fill my copper, the same I use for brewing, which holds only sixty gallons, and boil it till it be reduced about a fourth part. I then draw it off, and boil the remainder of the liquor in the same manner. When this last is about a fourth part wasted, I fill up the copper with some of that which was first boiled, and continue boiling it, and filling it up, till the copper contains the whole of the liquor, by which time it will, of course, be half evaporated. I must observe that, in boiling, I never take off the scum, but, on the contrary, leave it well mixed with the liquor whilst boiling by means of a jet. When this is done, I draw

it off into under-backs by a cock at the bottom of the copper, in which I let it remain till it be only as warm as new milk. At this time I turn it up, and suffer it to ferment in the vessel, where it will form a thick head. As soon as it is done working, I stop it down very close, in order to keep the air from it as much as possible. I keep this, as well as my mead, in a cellar or vault I have for the purpose, being very deep and cool, and the door shut so close as to keep out, in a manner, all the outward air; so that the liquor is always in the same temperature, being not at all affected by the change of weather. To this I attribute, in a great measure, the goodness of my mead.

'Another proportion I have of making mead is to allow eighty pounds of purified honey to 120 gallons of soft water, which I manage in the making in all respects like the first abovementioned; and it proves very pleasant, good, light-drinking, and is by many preferred to the other, which is much richer and has a fuller flavour; but at the same time it is more inebriating, and apt to make the head ache if drunk in too large quantities. I imagine, therefore, upon the whole, the last to be the proportion that makes the wholesomest liquor for common drinks, the other being rather, when properly preserved, a rich cordial, something like fine old malaga, which, when in perfection, is justly esteemed the best of Spanish wines. I desire, in general, to have the liquor pure and genuine, though many like it best when it has an aromatic flavour, and for this purpose they mix elder, rosemary, and marjoram flowers with it; and also use cinnamon, cloves, ginger, and cardamums in various proportions, according to their taste. Others put in a mixture of thyme, eglantine, marjoram, and rosemary, with various spices; but I do not approve this last practice at all, as green herbs are apt to make mead drinks flat; and too many cloves, besides being very predominant in the taste, make it of too high a colour. I never bottle my mead before it be half a year old; and when I do, I take care to have it well corked, and keep it in the same vault wherein it stood whilst in the cask.'

TITS.

[70.] My plan of getting rid of tits is as follows:—I hang a bone up on the branch of a tree, and put poison on the small quantity of meat I leave on the bone; the tits soon find it out, and finish themselves off without any more ado. A friend of mine suggested that the above hint would answer a double purpose. He thinks if any one was troubled with night marauders of the feline species, that it would not be a bad idea to leave the tits laying about for them to clear away. Perhaps so, but I would advise any one testing the above hint to have a look round occasionally and pick up the dead 'uns, if there are any to be seen (tits, I mean). I have tried tying a piece of meat on the bridge of a small trap, and find that answers very well, but wants so much looking after, and the springing of the trap (if placed on the alighting-board) jars the hive and disturbs the bees.

My bees were flying in thousands on the 3rd inst., so I went through all the hives to see how they were off for stores. I found they were getting very short, not a sealed cell of honey to be seen in all but one, and that one had only a few sealed cells near the top bar of one frame. Of course, I only just peeped under the quilt, and as I had made a cake of candy for each hive a day or two before, I thought I had a chance of a thousand to pop them under the quilts, which I did, without getting any rheumatic tincture injected into my system. I see your correspondents (30 and 31) advocate cheap hives knocked up from Tate's cube boxes. I have been pained to see similar hives. Take my advice, don't use such, but make your hives from good yellow deals, double walls, well packed with cork-dust, and you will never regret the extra outlay, and you will find the bees do better by far in them than ramshackled old boxes, that require half their weight of putty stuffed into them to keep the wet out. I believe such miserable hives to be breeders of foul brood, and any one that once gets that into their apiary don't forget it in a hurry. I have been troubled with it, and thoroughly eradicated it without the loss of a single colony. I use Tate's boxes for chaff-trays and supers, they come in handy for that purpose.

Would Mr. Grimshaw give his opinion on cocaine as a remedy for bee-stings? I have had it injected into my gums to deaden the pain of extracting teeth, but in my case I considered it a failure, and I was informed by a dentist a few days since that there have been several accidents with it, and those that are in the habit of injecting it into their system as they would morphia are subject to delusions. I am under the impression that if rubbed on the place where stung it will ease the pain. I ask this question for the benefit of those who suffer so severely from stings.—On n'a rien sans Peine.

SECTIONS.

[71.] I venture to write to your paper for information as to the proper manipulation of section crates. I am in the habit of putting crates of twenty-one one-pound sections on my hives. As soon as the first is well started I put another under it. My first query is this: Is it advisable to add a third crate? With the greatest attention I find that for about a fortnight in the flush of the honey-flow my two crates are not enough to keep my bees fully employed—at least, so it appears to me. Will any of your correspondents give their experience? I don't want to have a lot of unfinished sections on hand at the end of the season, while at the same time desirous to do everything to increase my harvest, I being on the 'mercenary rung' of the ladder. At the same time will some one give me the most perfect *modus operandi?* It is no joke to have to lift two crates full of honey, and I fear I should rather irritate my bees.—W. H. Cooper. [See p. 80, last vol.—Ed.]

Echoes from the Hives.

The Apiary, High Ham, February 5, 1890.—Not seeing any 'Echoes' from this quarter I should like to give mine. Last year I commenced with four bar-frames and nine skeps, from which I had ten swarms, one of which flew away, another I placed in a bar-frame I had by me, and the rest in skeps. The swarm in a bar-frame stored twenty-one sections and 23lbs. extracted. The remainder of hives produced 292 lbs. extracted and thirty sections, which small amount I attribute to the number of swarms and weak hives in commencement of honey-flow. In August I drove all the skeps, and placed them in eight bar-frames (ten-frame) with eight sheets foundation, and fed to required amount. After that I drove some condemned bees, and placed them in two bar-frames and three skeps, and fed. I have wintered seventeen colonies, which seem to have enough stores till I commence feeding again. I wintered with quilts of 'lagging felting' over frames.

Beaconsfield House, Morton, Gainsborough, February 11.—I examined sixteen bar-frame hives here on the 1st. Bees strong and still plenty of stores. The frequent warm bursts of sunshine have tempted many out to their destruction. On the 2nd the ground at one apiary was covered with chilled bees.—F. J. Cribb.

THE LOVER.

The Bee went a-courting
My Lady the Fly;
Said the Bee to my Lady,
'For you I would die.'

Said sweet Lady Fly,
As she blushed 'neath her wing,
'I love your soft words,
But I hear that you sting.'

Simple Methods of Testing Wax.—Melt the wax in boiling water, stir well, and allow to cool. Any mineral adulterants will sink to the bottom. Should there be starch, a drop or two of tincture of iodine to the water will turn it blue. Tallow, stearine, resin, or Japan wax are detected by boiling a piece of wax in a concentrated solution of carbonate of soda. If these adulterants are absent, the liquid on the top on cooling remains clear, whereas if they are present it will be opaque.—*Apiculture.*

Honey.—The effete stomachs of this generation do not relish honey. In the days when men had physiques, and women were Dianas, honey was an acceptable food. Milk and honey made a concord ordained by Nature. Honey is pure; it is nutritious; it is rich. No perverting cook intervenes to spoil it. Fresh from Nature's hand it comes to us, served in the natural comb which surpasses china in its delicacy, and of a consistency and colour unattained by any wine. —*Western Apiarian.*

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

G. Stanley.—Yes; also Tate's cubes, black brand. To your second question, yes, but it is best boiled.

Bert.—*Phacelia* will grow in England; sow in spring.

T. Powell.—December 24th is the final number for 1889. The correct date would have been 26th but for Christmas.

G. Worssell.—Ordinary mortality; the bees having died in the hive, have been turned out by the living ones. The so-called skeletons are larvæ which have died in the cells before hatching out. Nothing uncommon in either case.

J. Russell.—We will look the subject up.

Beta.—It is no use removing bees 600 yards only, hoping they will not find their way back. They will. Your only plan is to remove them to a place, say, two miles away, leave them a few weeks, and then bring them to their new place.

R. de B. S.—We should not attempt it before April, and even then have to be much controlled by the weather. Say five frames. Full sheets. If you have no proper skep-knife, then either cut the skep, or bump the skep sideways, so as to break the combs off. Gradually move them now about three feet after each day's flight. Yes. Not unless the bees are flying freely.

H. A.—Skeps upside down. Move the others on a cold day, just as they are.

J. Christie.—You say you intend putting two good strong swarms into each hive. If you do, you may expect 'ructions.' Give full sheets of worker size, no drone.

The people I have met far in the Chibokwe country seem to be wholly devoted to procuring beeswax, and when out hunting for it they live for weeks almost entirely on the honey. They also make a drink from it—a kind of mead, the honey being mixed with water and fermented in large calabashes. As they drink this warm in the morning, it keeps them in a half-dazed condition all day. They extract the wax from the comb by a simple process of boiling, and then put it through a sieve made from bark fibre by beating and rubbing. The wax is left to gather on the surface of the water, and is then collected, pressed by the hands into balls, cast into large cakes, and sold to Bihé traders.—F. Stanley Arnott, *in 'Seven Years' Missionary Work in South Africa.'*

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Editorial, Notices, &c.

AN OPPORTUNITY.

Some few weeks since we alluded to the increased activity of the Fruiterers' Company, who were endeavouring to foster the extension of fruit-growing in the country, and we at the same time expressed a hope that the B.B.K.A. would use its influence to get bee-keeping added to the subjects already contemplated by the scheme of the Fruiterers' Company. We are extremely glad to find that not only has this suggestion taken practical shape, in the form of a resolution brought before the annual meeting of the B. B. K. A. last week, but that the resolution met with nothing but commendation on all hands. We may therefore expect to be very shortly apprised of the practical outcome of this further attempt to advance the public good.

In the very favourable discussion on this motion, one or two items of great interest were referred to. Dr. Bartrum, who seconded the resolution, spoke of the immense usefulness of bees in securing the fertilisation of our various fruit-blooms. Although this service is acknowledged by every thinking, intelligent bee-keeper, yet, 'from information received,' we have little hesitation in affirming that there is a great want of increased knowledge on this subject by the public at large, and, somewhat to our astonishment, among professional fruit-growers. Doubtless, the successful bee-keeper, at the conclusion of the season, measuring his success by the capital condition of his bees and the satisfactory quantity of honey he has secured from them, feels thoroughly satisfied with these results as a fair repayment for the time, attention, and money he has spent upon them. To this we offer no objection, but rather hasten to increase his pleasure by praising his benevolence in keeping bees to *increase* the fruit-crops of his neighbours—for such is the fact. Many of our early fruit-blossoms have a hard time of it what with cold winds and the absence of sunshine. It is just here that our bees come in especially useful, for by their peregrinations among the blossoms there is a much greater opportunity for the ripe pollen to be carried to the ripe stigma than there would be if the fertilisation was left to the unaided efforts of the flowers themselves. This is all the more evident in the case of those blooms which, although bi-sexual, have the pollen and the stigma attaining a state of maturity at different periods of time, but still more so in those blossoms which are uni-sexual only. Our springs are seldom sufficiently genial to give the conditions necessary to a 'good set' for any lengthened time. Thus, any insect which will assist in this useful work is invaluable.

There are well-known instances of the produce of an orchard being greatly augmented by the establishment of an apiary within 'bee-reach,' also of the same orchard giving a greatly reduced return when the apiary ceased to exist. We know in our own case we have had abundance of strawberries when others in the neighbourhood had very few, simply because our beds were close to our bees. The suggestion was thrown out at the B.B.K.A. meeting that any well-authenticated facts bearing on this point should be collected, and used as a forcible plea for the acceptance of bee-keeping as a subject deserving general attention. Who will assist?

Bee-keeping for the production of honey and wax only is, without doubt—so far, at any rate, as this country is concerned—a minor industry; but, if viewed from the more correct standpoint as being a means, indeed a most effective one, of obtaining a greatly increased supply of the various fruits which are daily becoming more and more

in demand, then its relative importance is much more evident. More than once we have heard the argument advanced that bees damage *sound* fruit. This is absolutely impossible; the mandibles of the bee can only penetrate anything of slight thickness like a scale of wax, which can be got at edgewise—that is, on both sides at once. Practically, the surface of, say, a plum, is a flat surface to our bee. The formation of the mandibles of this insect is such that no impression can be made on a flat surface.

The Baroness Burdett-Coutts, while putting the resolution to the meeting, made a capital suggestion when expressing the opinion that the Committee should devise some way of approaching the Minister of Agriculture respecting the best ways and means of disseminating information in the rural districts on our gentle craft. Incidentally her Ladyship deprecated the too common practice of wasting the energies of an educational body in erecting fine buildings in which to give lectures. Bee-keeping is essentially an outdoor occupation, and although much useful information may be imparted by means of lectures during winter evenings, in fact sufficient to start the 'fever,' it is the outdoor assistance during the season that is essential. Beginners want their difficulties met as they occur. We would suggest that the B.B.K.A., as a first step, place itself in communication with every certificated first-class expert, in order to ascertain who among them will assist in educating the public, and in what manner the expert, from his local knowledge, would suggest. The Association has a capital set of lantern slides, which ought to be in continual use.

If the present opportunity is made the most of, bee-keeping has a far greater future before it, taking its direct and indirect benefits into account, than even its most sanguine well-wisher imagines. To attain this we must work, *work*, WORK—but judiciously withal.

'The bee,' says an enthusiast, 'does not deface your fields by clipping the growing grasses, like the domestic animals; it does not mar the garden plants or levy taxes on your grain. Bees differ from the whole insect world. No tree, shrub, plant, or flower is injured by their presence.' He might have added that without the presence of bees many of the plants would soon cease to bloom, and even cease to live. Bees are the best friends of horticulturists and fruit-growers.—*American Bee Journal.*

Associations.

BRITISH BEE-KEEPERS' ASSOCIATION.

The annual meeting was held on Tuesday, February 18, at 3.30 p.m., at the offices of the Royal Society for the Prevention of Cruelty to Animals, 105 Jermyn Street, St. James's, when the Right Hon. the Baroness Burdett-Coutts (President) took the chair, and was supported by Mr. T. W. Cowan, the Hon. and Rev. Henry Bligh, the Rev. Dr. Bartrum, the Rev. F. T. Scott, Mr. McClure, Mr. Garratt, the Rev. R. Errington, Captain Campbell, Mr. Meggy, the Rev. W. E. Burkitt, Mr. Baldwin, Mr. Hooker, Mr. Grimshaw, Mr. Graham, H. Jonas, Mrs. Fielder, Miss Eyton, and other ladies and gentlemen. Letters were read from Captain Bush, R.N., Rev. G. E. Seager, and Mr. Walter Martin, regretting their inability to be present.

The Secretary (Mr. Huckle) read the minutes of the last annual meeting, which were confirmed and the President's signature affixed thereto.

The President moved:—'That the Report and Balance-sheet issued for the year 1889 be received and adopted, with a vote of thanks to Mr. Kirchner, the auditor.'

The Rev. Dr. Bartrum seconded the motion, and took the opportunity to call attention to the steady decrease of the funds of this Institution, which afforded the Committee serious anxiety. He quoted financial statistics of the past few years in proof of his statement, and expressed a hope that all interested in the cause would do their best to enlist new supporters, without which the Association would certainly languish. He also recommended the most rigid economy in regard to working expenses, and suggested that the invested subscriptions of Life Members and other trust funds ought not to be regarded as available assets. With respect to Shows, he thought the Committee ought not to spend much in excess of the funds contributed by the Royal Agricultural Society.

The resolution was carried unanimously.

Mr. McClure moved a vote of thanks to the retiring Officers and Committee. He thought the Committee well deserved this acknowledgment, for their duties were of an arduous character. The bad season of the year before last had considerably affected the industry of bee-keeping, and the Committee's labours were in consequence much harder. He was not, however, inclined to take so sombre a view of the cause as Dr. Bartrum, but fully believed that better times were coming for bee-keepers.

Miss Eyton seconded the motion, which was carried unanimously.

The Rev. F. T. Scott proposed a vote of thanks to the Council of the Royal Society for the Prevention of Cruelty to Animals, for the gratuitous use of their board-room for committee and other meetings.

The Rev. R. Errington, in seconding the motion, said that the Society's kindness should remind them that one of the great duties of the B. B. K. A. was to press on all bee-keepers the

desirability of using the most humane methods in treating their bees.

The resolution was passed unanimously.

The President returned thanks on behalf of the Council of the R. S. P. C. A., who were most happy to lend their board-room occasionally to any institution having a kindred object, and she would feel much pleasure, as President of the Ladies' Committee of the Society, in reporting Mr. Errington's remarks to the Council thereof.

Mr. Cowan proposed the election of the President, Vice-Presidents, Treasurer, Auditor, Analyst, Librarian, and Secretary, for the year 1890, in accordance with Rule 9. It was unnecessary for him to say a word by way of recommending the reappointment of the Baroness, who was recognised by all as an excellent President. The Vice-Presidents were ladies and gentlemen of position, being Presidents of the County Associations, who, no doubt, were interested in the cause. The Treasurer (Mr. Glennie) was very efficient in his duties, and the same might be said of Mr. Kirchner, the auditor, and Mr. Otto Hehner, the analyst, although during the past year it had not been necessary to seek the services of the latter gentleman. With regard to the post of Librarian, he regretted to report the death of Mr. Henderson, by which a vacancy had been created. In respect thereto, the Committee thought it would be better for the present that the Secretary should undertake the office of Librarian as well as that of Secretary.

Mr. Garratt seconded the resolution, which was carried unanimously.

The President returned thanks for re-election, which afforded her great gratification, and only regretted she was unable to devote more time to the service of the Association.

The Secretary read the list of members nominated for election on the Committee for the year 1890, as follows:—Mr. R. T. Andrews, Castle Street, Hertford; Hon. and Rev. H. Bligh, Hampton Hill Vicarage, Middlesex; Rev. E. Bartrum, D.D., Wakes Colne Rectory, Essex; Captain W. Bush, R.N., Southleigh, Stevenage; Captain Campbell, Box Grove, Guildford; Mr. Thomas W. Cowan, Comptons Lea, Horsham; Rev. R. Errington, Clewer Rectory, Windsor; Mr. Jessie Garratt, Meopham, Kent; Mr. W. H. Harris, Oberlin House, St. Leonard's Road, Ealing; Mr. P. P. Hasluck, The Wilderness, Southgate; Mr. H. Jonas, 64 Redcliffe Gardens, S.W.; Mr. W. Lees McClure, The Lathoms, Prescot; Rev. J. L. Seager, The Grange, Stevenage, Herts; Rev. F. S. Sclater, Westmesten Rectory, Hassocks, Sussex; Rev. F. T. Scott, Hartlipp Vicarage, Sittingbourne.

On the motion of Mr. Cowan, it was agreed that item 8 on the agenda should be considered before Mr. Bligh's proposed amendments to the Rules of Affiliation, which stood No. 7 thereon, the President being specially interested in Mr. Graham's proposal, and having to leave the meeting earlier than expected.

Mr. W. M. Graham moved: 'That this meeting would suggest that the Committee should place themselves in communication with the Fruiterers' Company with a view of getting teaching in bee-keeping added to the proposed scheme of instruction in fruit-culture now being formulated by that Company.' As the scheme in question had been very well considered by the Fruiterers' Company he thought it most desirable that the B.B.K.A. should endeavour to work hand-in-hand with them towards the furtherance of the objects of each body.

The Rev. Dr. Bartrum seconded the resolution, regarding the proposal as of the highest importance. It was quite clear that the subject of fertilisation was comparatively new to those interested in fruit-culture; but it was daily becoming better understood, and was gradually gaining ground. He had himself some time ago written to the *Times* thereon, and had received many letters in reference to the same. Some of the writers were quite ignorant of the immense value of bees to the fruit-grower, and some recommended that every means should be exerted to disseminate in the country such valuable information, which could be done through lectures and literature. One correspondent had asked him (the speaker) to read a paper on the subject before a local farmers' club, but feeling himself not quite competent enough to comply with such a request, he had suggested that application should be made to Mr. Cheshire, Professor Wheatley, or Mr. Cowan.

Mr. Cowan agreed that great ignorance prevailed on the subject of fertilisation by bees, as was evidenced by the remarks of a farmer (whose letter he had before him), who said that he was very fond of plums and fond of bees, but he preferred plums to bees, and he insisted that the bees destroyed his plums (laughter), and begged that the extension of bee-keeping should not be encouraged. He (Mr. Cowan) had already been in correspondence on the subject, and intended to have brought the matter up for consideration at the last meeting of the Committee had he not been prevented doing so by his illness. He thought it would be a good thing for the Association to help forward the movement initiated by the Fruiterers' Company, and recommended the adoption of the resolution.

The Rev. F. T. Scott quoted Lord Sudeley as having expressed a high opinion of the value of bees as fertilisers.

Mr. Garratt said that Lord Stanhope had recently expressed a similar opinion.

Mr. Baldwin said he happened to know several persons who kept bees solely on account of their uses in fertilisation, and not out of any desire for the honey they produced. It was well known that bees were unwilling or unable to attack any but decayed fruit.

The President thanked the meeting for consenting to take the resolution before them out of its turn, and trusted that she had not caused Mr. Graham any inconvenience thereby. No doubt his motion would be adopted, and if so, probably it would be thought well to appoint a sub-committee to consider in what way it would be best to approach the Fruiterers' Company. Possibly the Company knew more on the subject

of fertilisation than they thought they did; but, at any rate, it seemed essential that a mass of information and evidence should be collected and laid before that body in support of the views held by the Association. The late Lord Mayor, Sir James Whitehead (Master of the Fruiterers' Company), they knew to be immensely interested in the subject, and she ventured to propose, if that were compatible with the rules, that he might be asked to become an honorary member of the B.B.K.A. Most likely he would be glad to gain information on the matter under consideration, and the Association would be placed in a better position by a graceful act of the kind suggested. It was of the highest importance to make the best use of the present opportunity. The value of technical education had largely occupied the public mind of late years, and the step taken by the Fruiterers' Company would no doubt help forward the movement. She did not believe much in fine buildings where lectures were delivered on the various subjects. Technical education, in order to be successful, must be of a *very* practical character, and studied by a class of people capable of undertaking and carrying on the particular business taught. She was sorry to hear of the unfavourable state of the Association's finances. The Windsor Show had certainly involved heavy expense, and was not likely to be repeated; but, on the other hand, they must look at the *éclat* gained to the Association, and the advantage to the cause of bee-keeping by the presence of Her Majesty the Queen on that particular occasion. She could assure them that Her Majesty was intensely interested in everything that took place, and would have been very pleased to inspect all the appliances and see more of the manners and habits of bees, if time had permitted. The Queen was delighted with the beautiful bouquet of wild flowers which the bees love, and which formed a striking contrast to the superb bouquet of orchids she also carried. Possibly the growth of new County Associations tended somewhat to diminish the subscriptions to the parent body. That was the case with the branches of the Royal Society for the Prevention of Cruelty to Animals. However, let the cause of the diminution of funds be what it might, it was undeniably a wise course to be very guarded in protecting the institution against any increase of expenditure. The bee was an example of thrift and economy which they must endeavour to imitate. As a set-off against the adverse circumstances quoted by Dr. Bartrum, it must be remembered that the cause had made considerable progress during the past few years, prior to which little was known of it. Not long ago it was customary to destroy hives and bees, which would at the present time be considered a barbarous method. She (the President) could not but feel that, looking back to the time when the late Mr. Peel first took up the subject, they had good reason for congratulating themselves on the position attained by the Association. She thought it was well worth while for the Committee to consider the possibility of approaching the Minister of Agriculture (Mr. Chaplin) respecting the best ways and means of disseminating in the rural districts information on the subject of bees and bee-keeping, about which a remarkable amount of ignorance prevailed. She thought Mr. Chaplin could be interested in the matter if it were brought under his notice privately. Her Ladyship concluded by recommending that all those publications which taught apiculture and advocated the aims of the B.B.K.A. should be largely advertised, and thanked the audience for the kindness with which she had been listened to.

Mr. Grimshaw thought the President's suggestion respecting the Minister of Agriculture a very valuable one. The same idea was mooted two years ago, when the secretaries of County Associations were asked to furnish information stating in what way bee-keeping had been found to be beneficial in their respective districts, such particulars being required for presentation to the Minister of Agriculture.

The resolution was carried unanimously.

The Hon. and Rev. Henry Bligh proposed a vote of thanks to the President, who, at this point in the proceedings, was obliged to leave the meeting.

The motion having been carried by acclamation, the Baroness bowed her acknowledgments and retired.

Mr. Cowan thereupon took the chair, and the Hon. and Rev. Henry Bligh moved (item No. 7 on the agenda) the following amendment to the Rules of Affiliation:—'Page 6. That the words "as agreed upon by the Central Association and the representatives of the Affiliated Associations" be omitted.'

Mr. McClure seconded the motion, which was passed *nem. con.*

The Hon. and Rev. Henry Bligh moved:—'Page 6. "Condition," 3 line, 2, for "two" read "one;" after "members," insert "being a member of the B.B.K.A."'

The Rev. Dr. Bartrum seconded the motion.

Mr. McClure felt with several of his friends that the Conferences ought not to be done away with. Such meetings had been beneficial to the country Associations, and he thought the country representatives should hold a periodical Conference amongst themselves, with the object of placing their views before the B.B.K.A., and he moved an amendment in accordance with this view.

Miss Eyton seconded the amendment, saying that it was of the greatest importance to County branches that Conferences should be continued.

A discussion followed, the Hon. and Rev. Henry Bligh, Messrs. Garratt, Meggy, Graham, Hooker, and McClure taking part therein; after which, Mr. Bligh consented to withdraw his amendment, as well as the remaining amendments on the agenda standing in his name; and on the motion of Mr. McClure, seconded by Miss Eyton, the following resolution (subject to some verbal alterations, so that it might, without altering the spirit thereof, square with the existing rules) was unanimously agreed to: 'That two representatives may be nominated by each affiliated Association, as provided in

last year's rules, such representatives to attend the quarterly Conferences of Affiliated Associations; one only to attend and vote at the Committee meetings of the B.B.K.A.'

The proceedings of the annual meeting then terminated.

Mr. Garratt desired to announce that there was every prospect of the projected exhibition of hives and honey in connexion with the Bath and West of England Show being a success. It was proposed to hold the same on the 3rd of June and four following days at Rochester.

[The report of the *conversazione* will appear in our next issue.—Ed.]

WOTTON-UNDER-EDGE BEE-KEEPERS' ASSOCIATION.

The annual meeting of the above Association was held on January 13th at the Town Hall, when the Secretary read his annual report and balance-sheet, and it was resolved that the report and balance-sheet be adopted as read.

A resolution was carried that this Association be affiliated to the British Bee-keepers' Association. It was also resolved that the monthly meetings be continued on the second Monday in each month.

The Countess of Ducie has kindly consented to be President of the Association.

MIDDLESEX BEE-KEEPERS' ASSOCIATION.

The annual general meeting was held in the Board-room of the R.S.P.C.A., 105 Jermyn Street, on Thursday, February 13th, under the presidency of the Baroness Burdett-Coutts. About fifteen members were present.

The Secretary presented the report, also the balance-sheet. The balance in hand has increased from 8*l.* 10*s.* last year to 13*l.* 1*s.* 1*d.* From the report we gather that, considering the disastrous nature of the previous season, bee-keepers in Middlesex did fairly well in 1889. The average yield, in well-managed apiaries, seems to have been about 40 lbs. per stock. These results have been gathered not alone through the Expert, who visited the country both in the spring and autumn, but also from reports sent in by the district secretaries and published with the general report.

The Baroness Burdett-Coutts was re-elected President of the Association, and, in accepting the post, she expressed her great satisfaction at being asked to continue. Referring to the Windsor Show, the Baroness thought the apiarian part of it likely to be of great benefit to bee-keeping in the future. She spoke also of the evident satisfaction of Her Majesty the Queen in looking over the exhibition of honey and apparatus, and mentioned that a second visit was paid by Her Majesty in the quiet of the evening, when the bee-tent was clear.

Mr. Jonas was elected Treasurer, and Messrs. Smyth and Savory added to the Committee. Mr. Kenworthy and Mr. Baldwin were re-elected respectively as Auditor and Expert. All the other officers and Committee-men had served before.

In reference to the vacancy in the Committee caused by the death of Mr. G. Henderson, the Secretary (Mr. Bligh) said a few words testifying to the great loss which the Association had sustained. A resolution was at once passed expressing the sympathy and regret which was felt by the Committee, and a request that Mr. Henderson's family should be informed.

The usual annual drawing for prizes took place during the meeting, and the names of the winners of prizes were read before its conclusion.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," c/o Messrs. *Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 1st page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

CASTS AND DRONE COMB.

[72.] I think it about time that a few words should be written to correct the errors promulgated by Mr. W. B. Webster, and I regret to see subscribed to editorially, but, as I would fain believe, unwittingly.

I need go no farther back than November 21st last (though the question was raised in October), when I find (p. 489) that Mr. Webster is accredited with having 'very lucidly explained that "*casts usually being accompanied by virgin queens, are, when first hived, in a condition desiring drones for the purpose of mating with the queen, and, as a consequence, construct drone comb until such mating takes place.*"' Now this statement is so contrary to fact that I cannot help expressing my astonishment at its appearance in the *British Bee Journal* after sixteen years of publication. So long ago as July, 1874, my own experience and observation led me to write (p. 35), 'Casts are composed of almost all young bees, and *although accompanying a young infertile queen, they always build worker comb exclusively until they have made their brood-nest as large as they are capable of attending to.*' This I affirm to be the truth now as it was then, and I can safely challenge Mr. Webster to produce a bit of drone comb built (unaided and unimpeded) by a natural cast until after the bees have built a brood-nest as large as they are able to properly manage, unless in the meantime they become queenless.

The next statement by Mr. Webster (Nov. 21st

last) sets forth that '*Drone comb will always be found at the side of a skep farthest away from the centre, hence casts accompanied by a virgin queen or queens will be found to construct their combs from the side and towards the middle.*' I agree that the side of a skep is farthest away from the centre, and that casts (naturally) always begin building at the side of a skep, but *I defy Mr. Webster, or any other bee-keeper, to produce a comb of drone-cells, built under normal conditions, next to the side of the hive on which the cast first clustered and began to build.*

The next statement (Nov. 21st) informs us that 'First swarms, being accompanied by a fertile queen, do not require the services of drones, and so commence to construct worker combs, as they only then require workers, and *as worker comb is always found in the centre of the hive, they must of necessity commence building in the centre.*' But it happens often that first swarms with fertile queens, when left to their own sweet will, do not *always* build worker comb in the centre of their hives, the '*must of necessity*' notwithstanding. I have seen dozens of instances where fine first swarms have been ruined through the presence of an excess of drone comb in the central part of the hive, one remarkable case being that of a grand swarm at Market Drayton, which, ignoring the guides given in a Woodbury hive, built a complete drone comb direct from corner to corner of the hive, diagonally through its very centre, and I had the pleasure of correcting the big bee-blunder. Many cases have also occurred here, when swarms have been kept waiting (as from Saturday to Monday) before being sent out—they have built large pieces of drone comb almost as a beginning, as has been found when packing them for transit. The letters of my old friend, Mr. John Walton, and others, have evidently shaken Mr. Webster's faith in his own convictions, for we find him (p. 68, Feb. 6th inst.) greatly toning them down, and somewhat begging the question. He suggests that the young queens accompanying casts may become fertilised '*while on the wing with the swarm*,' 'at other times a day or a couple of days' afterwards, and by his reasoning the first-named would begin to build worker comb, and the others, drone; and probably he will endeavour to account for the absence of drone comb in the early life of casts by suggesting that the queens of such casts are fertilised while 'on the wing at swarming-time,' and are not 'in a condition requiring drones;' but, should he make this a loophole for escape, all his other facts (?) melt away, and his theories go with them, for in no case do casts, pure and simple, begin by building drone comb, or laying the foundation thereof.

Casts, when hived, if they stay, cluster on the side of the hive, apparently for the conservation of heat, and build worker comb exclusively until they have built as much as they can cover and keep warm; or, in other words, until they have completed the brood-nest, which will be of a size corresponding with the bulk of the bees. The comb next the side where they begin to build will, at that time, be the deepest of the set, and, in some instances, may be the largest, the statement that casts begin with a drone comb at the hive side, and leave it to be completed at a later date, having no foundation in fact.

Since comb foundation has come so largely into use, and bees have been subject to artificial treatment, the bee-keeping public has but a hazy idea of how bees act on the let-alone system—or, as some would say, in a state of nature; and it is therefore much to be deplored that an effort to enlighten them should be based on theory evolved out of imperfect observation and immature reasoning.

Fearing to trespass too much on the space available for comparison of ideas, I propose to make further remarks on natural swarms (unassisted) in a future paper.—C. N. Abbott, *Fairlawn, Southall, Feb. 14th*, 1890.

[Pleased to hear from you again, your next will be acceptable.—Ed.]

CASTS COMMENCING TO BUILD DRONE COMB, OLD WORKER COMB, ETC.

[73.] Mr. Webster, in his last letter, writes as though I had written mine (how should he know otherwise?) after I saw his letter, on page 520, December 19th, 1889. The fact is, I had sent my paper a week or two before his letter was published; my article on shallow frames, which appears on the same page, was sent with it. However, I must again say that I have never known casts to commence building drone comb; that they frequently start building towards side of hive I admit, but not always. I have many times taken casts out of the skeps at night when they have been hived a few hours, and have always found they had started with worker comb. As regards old comb that has been in hives fifteen or twenty years, is it not a fact that, in spring particularly, we find old pollen thrown out of the hives; and sometimes on examining combs I have found all the cells torn down to the midrib. I have no doubt in my own mind. I believe the bees very often renew old combs in this way. I have combs left yet in some of my hives that were built before the *B.B.J.* was published, and yet they are in fair order.—John Walton.

EXPERIENCES.

[74.] In August, 1888, I began with what I consider one of the most wicked swarms of bees in a straw skep, and thinking it might be rather cold in such a jerry-builder's hut, I got a large tea-chest without a top, and made part of the bottom movable, and cut an aperture about four inches wide and three-eighths of an inch high in one side; then turned the chest upside down over the skep on a large board placed on the top of four stakes driven into the ground and made quite level, and fixed the aperture in the chest close to the rough passage in skep;

then filled in the outside of skep and inside of chest with canvas, &c. (made very dry), from the opening, previously made movable, leaving space for bottle of syrup to feed until they were the desired weight—twenty-two pounds. I then removed the bottle, and fitted the hole in skep with a piece of round wood, and filled above with more canvas, and a piece of waterproof over the roof. A few times they took short flights about the garden, but at the end of February, 1889, I saw them commencing business in earnest on flowers in my garden. These flowers were unknown to me as suitable for bees, but were brought by a friend of mine from Jersey, and planted about nine months previously for making into walking-sticks; the roots went so far below the surface that they grew rapidly, even through the winter; and as they bore so many young sprouts all up the stem, which really amounted to several miles of greens, and being so much more than was required for the house, were left to run to flower (some being white and some yellow), many of the stalks being twelve feet high, and about eighteen inches apart, so that in rough weather they supported each other; and it is my intention to plant Jersey cabbages every year that I keep bees, as they were fully employed (or seemed to me to be) through March and April. And on Sunday, the 5th of May, my wicked creatures began with such Meg's diversions that startled me. As it happened, I was at home that Sunday morn, when there was such a congregation of insects assembling outside the hive! It so startled me that if I were to tell you all, I fear you would not truly sympathise with me. Have never seen such a commotion, only in pictures, where I could not hear such a real hum-m-m-m-m-m, in the major key, as this was, which made me quiver from head to foot, not knowing what to do. When I recovered a little consciousness, I thought of the tin kettles, frying-pans, and other articles which need not be mentioned, but felt I could not resort to either as it was Sunday morning. What could I do? Everybody gone to church, there was no one to pity, none to caress; the servant said she must attend to the dinner; there was an empty house each side, so there was no one to laugh at me in my bewilderment. I felt spellbound to the place; could not go away to find help, in case I might lose sight of my first swarm, as the nearest bee-keeper I knew was six miles away; but Providence smiled on me by giving me the pleasure of seeing them 'roost' in a forky shrub close to the ground, but even this I thought troublesome. But at last my friends came home, and relieved me of my vigils; still, not one of them knew what to do, or if they did, were not plucky enough to put it into practice; and, Mr. Editor, just fancy! no hives, no frames, no smoker, no gloves, no veil, and the nearest acquaintance who knew anything about it was over six miles away from my house! Two of my friends walked this distance and back, but, alas! not in time to hive them that day. So there they stopped all night; but in case we should oversleep ourselves, we cut away all the branches of the shrub down very close to the bees, and then fixed an umbrella over them, thinking by so doing they might be the more disposed to stop; but in the early grey we were working away at the frames and hive, so that by about five o'clock in the morning we were ready with skep, &c., for hiving them. Then—oh, then!—who was to be the brave one? Neither of us could handle them for fear of payment, but at last we removed the 'tent,' clearing the way all round as much as possible to make room to run if necessary. At length one of us mustered up all the courage he could command, and tried to move them out of the forked stump, but as fast as they were moved out they moved back again, till we found we must saw the stump off below the surface of the ground. Then we shook them on to the sheet, which we had placed at the front of hive (the bottom of which we had made to lower), and at last, without smoker, they took possession of the new hive, and three of us watched their movements about four hours. Then we ventured to leave them while we enjoyed a hearty breakfast, which made us feel as though we had recovered our equilibrium, and returned to the hive feeling they were interesting insects—but rather *slow*.

We then carried them to our own garden, about 200 yards, and eight frames were filled with comb in a few days, and two others were soon filled when we put them in in the early part of June, and during the season they filled thirty-nine one-pound sections. On May 21st, a second swarm left the old skep, but we managed to hive them quite as well as we did the first swarm; and on May 28th drove our originals out of the skep into a new bar-frame hive, and thus finished with the straw: and although much has been said against skeps, I don't think I shall complain. And as I now grow cabbage flowers for the late autumn, as well as early spring, I intend continuing them, as I consider the honey was the best that could be got anywhere near. The walking-sticks suit my small garden well, as they grow upwards where there is plenty of room, and leave space below for other crops on the ground under them, and the stocks that are not required for sticks we use for garden chairs and sofas for the verandah.
—AMATEUR, *Bath*.

MOVING BEES.

[75.] In reading the *Bee Journal* week after week, I came across inquiries concerning removal of bees, and your sensible answers to same; but I don't remember seeing the method *I* adopt. I will briefly relate the same. I bought four stocks from a friend of mine living in the same town, and not more than three or four hundred yards from my garden. I thought a long time of a method for removing them without the bees going back to their old stand, so I hit on the following. It was on the first day of November, 1889, the weather was mild and fine in the day, and I was forced to move them; so

I went there after it got dark, packed them up, and brought them to my own garden, placed them on their stands, opening the entrance full to let them have air. Early next morning I went there before any of the bees were out and closed the entrance, then opened same just as it got dusk next evening, and got there next morning and closed the entrance as before. I did this for four nights, and am glad to inform you that I don't think I lost one bee. They took to their quarters well, and have been doing well ever since. Hoping this will help some one,—THOMAS HUGHES, *Denbigh.*

VITALITY OF BEES.

[76.] As mentioned in my last (No. 42), I had succeeded in resuscitating nearly three-quarters of the frozen stock; but as they seemed somewhat weak, I thought the best plan was to leave them by the fire for an hour or two.

I am aware that my next proceeding is open to objection, on the ground that disturbing the bees in their winter quarters is not advisable, but I was anxious to save the frozen stock if possible, and willing to risk something.

I prepared a small hive, capable of holding six frames, for their reception; removing the floor-board and substituting a sheet of glass. I then brought a hive of bees into the house and removed all the quilts but the last, under which at both ends I introduced a little peppermint between the frames; after a few minutes I slipped a sheet of glass under the quilt at one end. I then took the skep with the revived bees, after having sprinkled them with a little peppermint, gave them a good shake, took off the cloth, and poured the bees into the small hive with the glass bottom, and placed a quilt over the frames. I then rolled back the quilt of the other hive as far as the glass extended and placed the small hive on the top, then carefully withdrawing the two sheets of glass, I had the small hive resting on and across the bars of the under one. By introducing smoke, I gradually drove down all the bees into the lower hive, and when the small one was clear of them I slipped the sheet of glass between the two hives, and lifted off the top one, laid a piece of candy on the glass, and covered it over with the quilt, then withdrew the glass, and after waiting a few minutes to allow the bees to quiet down, and what little smoke was left to escape, I packed them up with warm, dry quilts, and returned them to their stand.

I have since carefully examined this hive on several occasions, and found but a few dead bees, so I conclude they are doing well.

I am of opinion that if, when I hived these driven bees, I had used full frames of comb, instead of transferring 'skep comb' to the frames, I should never have had this trouble; as it was, the combs were too small for the frames, and the bees could not keep the large space between the ends of the comb and the hive warm, and so got frozen. I forgot to mention that after all the revived bees had been taken out of the skep, I found among the dead at the bottom a lump of bees about the size of a large green walnut: in the lump I found the queen.—PROPOLIS, *Woodford, Essex, February 17th.*

TOWN EXPERIENCE.

[77.] In September, 1888, I bought six stocks in skeps on spec., intending to sell the first chance: but a friend advised me to keep one, so I sold four, thinking two as many as I could manage. They both got through until March, 1889, when one spring-dwindled, and some boys knocked the other off its stand, smashing half the combs out. This disgusted me; but I had got the bee-fever, so I put the hive on its stand again and collected a pint of benumbed bees, and put them into the oven between two plates, which revived nearly all, taking them back to the hive at dark; and I believe that just saved the stock. Last Easter I bought two more stocks in skeps, when on reaching home I found that one had broken down. This was my first job at bee-tackling, so, with certain misgivings, I turned the lot out on to a sheet, and swept the bees back into the skep, escaping without a single sting. This made me feel clever; but they have taken it out of me since. I did not get any swarms until July 2nd, when all three swarmed together. I put the swarms into frame hives, which *I* had made, having tied some good comb in bought from a man whose bees had all died.

On looking in to remove the tapes five days later, I found the bees had eaten the tapes through, and in two hives most of the combs had gone to the bottom and lay in a jumbled-up mess, so I had to sweep the lot out and start them again—on foundation this time. I think I shall never recommend a novice to tie combs in. I have done with it. I live in a smoky town, and we have to take the bees to the moors or get no surplus. I took four to the moor, and had the misfortune to have two broken down; one in going and one returning. I got 70 lbs. of heather honey, which I sold at 1s. a pound. I have had five sweeping-out jobs during this my first season, but hope to do better next time. I am wintering six, and all are doing well up to now.—A TOWN BARBER.

[If the combs are properly tied in they should not slip down. When combs do not fill the frames, they should have a strip of wood put under them, and a piece of tape put round this brings the comb quite close to the top bar. When this is done, bees usually fasten the combs to top bar at once, and the tape can be taken away in a couple of days.—ED.]

ASSIST THE IMPULSE.

[78.] You say in your notes (page 50) that Associations ought to assist all they can to encourage the poor to take a more lively interest in bee-keeping. I have kept bees now about four years; and as I have plenty of time on my hands, I have helped my friends around this district in giving advice (without charge) how

to manage their bees. I found the greatest drawback to the value of my advice to them was that I held no certificate. I applied to the secretary of this county for particulars when and how I could be examined as to my fitness to hold a third-class. I received a letter from him telling me to apply to J. Huckle, Esq. I did so, and received a postcard telling me to apply to the secretary of my county, which I had already done; so I have taken no more trouble in the matter. Neither have I taken any interest in my neighbours' bees; but I take a great interest in my own. I paid my subscription (*2s. 6d.*) for part of last year, and intended to have paid *5s.* in January this year, but have not done so—not because I do not hold a certificate, but because I was not allowed to be examined. Perhaps it was not convenient. If so, I ought to have been told so, and I should have been content to have waited a more convenient time. I should have taken no further trouble in this matter, but having seen your remarks, and a few words on page 81 from R. Douglas, I thought I would tell you what encouragement I have met with. —F., *February 15th*, 1890.

[It is for the Secretary of the County Association to make the arrangements for third-class examinations, and on application from him the Central sends an examiner and judge to the local show at which the examination is to take place. The following is the printed rule with respect to this:—'Candidates for third-class certificates will be examined, in their own counties or elsewhere, between May 1st and September 30th in each year, after giving notice to the Secretary of their Association as early in the year as possible of their intention to offer themselves for examination.'—Ed.]

BEE-HOUSES.

[79.] This question seems to be stirring the minds of some bee-keepers, some of whom are against bee-houses, while others are for them. Now the question is, which is the least expense? I know—the bee-house. Take, for instance, the illustrated front and back view of the Rev. G. Raynor's (page 44, No. 20), which is made to house twelve hives. Consider the expense of twelve substantial single hives; estimate them at *15s.* per hive (you cannot get weather-proof hives for much less to last as they would in a bee-house), they would cost you *9l.* Now, I think a bee-house to hold the same quantity could be made for considerably less than *9l.* I use one which holds six hives. It didn't cost me much more than *9s.*, because I bought it at a sale. I'll not say anything about what it cost making; but in the first place it is made of pitch-pine, where deal is plenty good enough. A friend of mine made one like it in deal, and it cost him something like *1l.* for timber. It is made like that of the late G. Raynor. All that is required for the hives inside are four half-inch boards nailed together, standard size. Where are the disadvantages? I fail to see any, because in manipulating you don't have so many bees hovering around you, because they make straight for the door. These are, I think, a few advantages gained by the bee-house:—

1. Not so many bees hovering round in manipulating.
2. You don't interfere with the home-coming bees.
3. Equal temperature.
4. Ample room for storing appliances, especially if the slopers on the top are on hinges and a flat top underneath.
5. Winter most certainly better than the cottage hive.
6. All under one roof, making it less hauling.
7. Less cost.
8. Everything to hand; and a host of other advantages.—F. Hirst, *Small Heath, Birmingham.*

[The illustration of Mr. Raynor's bee-house shows two tiers of hives, but when the storifying system came into vogue, the shelf was removed to give room for supering, therefore it really only accommodated six hives.—Ed.]

LADY BEE-KEEPERS.

[80.] It is not too late yet, is it, to wish you much success to your *Journal* this new year? It reaches our house on Saturday night, and is a great source of pleasure to me after my day's work is over. Though only glancing at the advertisements, I read the rest of it right through, and my advice to any inquiring friend ('Beta,' for instance) as to the bees is, get Cowan's *Bee-keepers' Guide*, and the *Journal*, and some brains, and you are fairly on the road to success. So I thought when, in 1887, we closed the year with 500 lbs. of honey and twelve bars; but 'the best-laid schemes o' mice and men' (aye, and women too) 'gang aft agley.' So at least I found it, and the less said about 1888 the better. But though I was far from well off, many in the *Journal* were worse, for I did not lose anything but a hive, and I only lost her in the same way as the sailor-boy lost his gridiron. He thought a thing wasn't lost if you knew where it was (his gridiron being at the bottom of the sea): so I transferred my weakling into another hive, and was to put my first swarm into the empty bar, but I had neither a first nor last. I had as much honey, however, as paid my year's expenses, and, nothing daunted, fixed them all up comfortably for winter, and looked hopefully forward to 1889. All wintered well and came out strong in the spring, and we finished last season with 700 lbs. of honey, fourteen bars, and two skeps (both of which were bought). All were alive and out in great numbers on January 31st. I was very pleased to note that Mrs. Harrison had read my bee-story, and if she would just try a tiering boxful of the double frames, I am sure she would be delighted with the result. It gives the maximum of honey with the minimum of labour; and as I'm getting well on in years, and not so strong as I have been, that is a point I always

keep in view. Yes, Mrs. Harrison, please just try one, and give us the result some time. I hope your double frames will be so heavy with honey that you will *not* be able to carry them yourself —a very pleasant and profitable fix to be in. Of course, you understand it is new foundation that is used between the frames. And now let me say a word to 'Beta.' I'm a very youthful bee-keeper (though I'm not very young), and perhaps you may understand me better than if I were farther advanced. I will be very pleased indeed if I can help you in any way, and as far as the management of your bees is concerned, I hope you will find that in that, as in many other things (as the Irishman says), the girls are the boys after all. Their touch is gentler, their quilts neater, their bars cleaner, so that if they aren't to the front in bee-keeping, they ought to be. I do not think it matters much what kind of stuff your bee-dress is made of. I go among mine with all kinds of dresses. The only thing I care for is, that the sleeves are very short and very tight, so that the bees do not crawl up my arms. I never wear gloves, never did; my veil is $1\frac{3}{4}$ yards of stiff black net (it soon gets soft), and a broad-brimmed hat completes the costume. When transferring or extracting I put a scarf round my shoulders above the veil to keep it down, but never trouble with it for putting on a crate, or giving a new frame, &c., &c.—the veil is quite sufficient. I scarcely ever get stung, except when I accidentally crush a bee; but beware, 'Beta,' of jarring the combs, or letting down a frame with a bump, for once rouse them, there is one thing they love as dearly as their mistresses, and that is, the *last word*. And now let me tell you about the quilts, because I think warm, well-fitting quilts make warm, good-working bees. Ours are threefold; the under one rough linen (6*d*.—a yard makes three); middle one, old tweed (I do not think it moths like flannel or blanket, if well washed and ironed); upper one, anything that looks clean and tidy. When making them I tack the middle fold—which is $\frac{1}{2}$-inch less than the other two—to the under one, then lay on the upper one and over-edge neatly all round, the edges of the under and upper one together—do not bind, it is much clumsier. I then place a feeding-stage (ours are square) in the centre, cut round three sides, and bind with tape or braid. This is quite close when finished, and can be laid back when you want to feed. We use these quilts all summer, but in the end of September we place over them our winter quilts, which are made out of sugar-bags, got from any merchant for 3*d*. or 4*d*., and, when nicely made and fitted, last for years. Any one of our summer or winter quilts fits any one of all our bars perfectly. Instead of cutting winter passages in the combs, I place lids across the frames under the quilts, which enable the bees to get to any frame without being chilled. By lids I mean the pasteboard lids of braid or button-boxes, pearl button lids being tip-top, in that they just cross the seven frames, which is the number I generally leave for winter. Our winter dummies are side sections with the separators on, filled with nice clean paper (our dailies), and then the dummy tacked on to keep in the paper and placed next the bees—cheap, cleanly, comfortable. So, 'Beta,' please fold all your spare paper through the summer months (if folded into size so much the better) and lay past; it will come in handy when autumn comes. In spring I get a new hive or two, and transfer the frames and bees into them; clean the hives by scrubbing with soap inside, and pouring into them plenty of boiling water; have them repainted, and proceed with other two, until they are all cleaned out. Perhaps it is purely imagination, but I always think the bees seem much busier when they are given a clean bar. I do not paint the bars myself (though I could, if I tried; my lady friend of the extractor does hers); but living as I do beside a Jack-of-all-trades, I get them done with little trouble. Wishing 'Beta' and all lady bee-keepers much success, I am—A Scottish Cousin.

LADY BEE-KEEPERS.

[81.] As I see no reply to 'Beta' from any *English* lady bee-keepers, I may as well write a few words as to my own experience. Before doing so I want to say that to me so much American experience as there has been lately in the *B.B.J.* is by no means helpful, except in *very* rare cases. Their climate and flora differing so much from ours necessarily preclude their management being any guide to us. Now and again it is interesting to know what the Yankees do in this industry, but one can easily have too much of their Illinois and other 'Echoes.' I wish more of our own bee-keepers would keep up the reading matter of this *Journal*.

But to return to 'Beta.' I am a lady bee-keeper, and have been since 1885. I do not go in for it strongly, though I take a great interest in my own and every one else's bees. I have but six hives now—four bar-frames, two skeps. These I manage *entirely* myself. We have no gardener, and are too far from a village to get help, because bees, as you know, do not give notice as to when help might be useful. My 'dress' consists of a veil made by myself at the cost of sixpence; this I wear over a stiff-brimmed sailor hat, and tuck well into the collar of an old jacket; if they (the bees) are good-tempered, often only into the neck-band of my apron. No gloves, certainly, though I generally put an elastic band round my jacket or dress sleeves, as it irritates them to 'get up' anything. Of course, I get stung at times, and swell up when I do, but 'He is not worthy of the honey-comb who shuns the hive because the bees have stings!' (I quote from memory.) If 'Beta' will take that as her motto, and is really fond of her little pets, she can handle them with comparative ease and enjoy her venture. I take off sections, drive skeps (I drove six last summer), and do all my work clothed as above—including, of course, housing swarms. My veil is of brown tarlatan, but I would advise 'Beta' to get a white or

black net one, they are better to see through, and the proper ones have a larger mesh. I always wear shoes, and seldom receive a sting on my foot or leg. She will soon learn it is better not to work over grass, where you cannot see the bees you may have shaken off; these are the little men to beware of, as regards your feet. If these few remarks are of any use to a would-be fellow-worker, I shall be pleased I have written them.—Bee-Kay.

EXPERIENCES, ETC., IN '89.

[82.] There is an old saying, 'Wise men learn more from fools than fools from wise men.' I asked the question in the *B.B.J.* about excluder zinc. I got the answer not to use it; still, I was advised by an old experienced bee-master to use it. Now comes the rub. I purchased a sheet of excluder zinc. Not wishing to get overstocked with bees, I would try it upon three stocks that were extra strong, and had been wintered upon eight frames. So, in May, I put behind the frames a dummy of excluder zinc, then four more frames with starters, and covered them up. About a week afterwards I put excluder zinc over the tops of the twelve frames, space above and below, and a crate of eighteen two-pound sections. The bees would not go up, but swarmed a heavy swarm. I then opened out the hive, and found behind the dummy of excluder zinc drone as well as worker-brood and bee-bread. I then looked into the other two, and found them in a like condition. I then discarded the zinc. I wished to keep the queen to eight frames, and by giving her all that room, thought I should get pure honey and no swarms. Now, some party no doubt will say, 'Small queens, or zinc is too large.' But how was I to know that? *It's a fad.* I thought it drawing the line rather fine. I had a lot of trouble to get them through to fill a glass.

Now, as a reader for a considerable time, I am rather astonished at the enormous quantities of honey some parties get, and often wonder if those bees get a gentle stimulant, some refreshing beverage, at night. If one-half that I have read had been written upon the medical qualities of honey, I think that its price would be greater than at present. I saw in a late *B.B.J.* an extract, 'Honey for La Grippe.' It is a very great question, speaking from personal experience, if it is worth while keeping bees to sell honey at its present price. I mean pure honey, not half sugar and water. I consider that it will not pay at less than 1*s.* per pound in sections, and 1*s.* per pound in glass jars. I have had 1*s.* per pound for all that I have sold so far, but have been offered 8*d.* wholesale; but I intend to stick as long as I can to that price. It is simple rubbish to advise the labourer to try and improve his lot when he cannot find a remunerative price for his honey. The cottager has a very poor chance now that bee-keeping is taken up so by the upper classes, whose gardeners look after the bees, and either flood the market, or, worse still for the cottager, when he calls where he used to sell his honey—'Oh, we have just received a magnificent lot of honey from Pin-money Hall,' or 'We are expecting some from her Ladyship.' The cottager used to call on the Squire, &c., and sell his best comb honey at 2*s.* and 2*s.* 6*d.* per pound not so very many years since. Now Mr. Squire supplies his grocer, &c., at what Mr. Grocer likes to give. Excuse the length of this epistle, and trust that 1890 will be a good year, and honey found to be good for —La Grippe.

AN EARLY VISITOR, ETC.

[83.] On my way home to dinner to-day (Jan. 18th) my attention was arrested by the struggling of a large queen-wasp on the pavement, likely felled by the chill of the day—the first I have seen this season. Bees are very quiet; Jack Frost opposes. Crocuses, &c., are ready for the 'charge,' and, with warm sunshine, a 'battle with the flowers' is daily expected.

I was much interested in reading letter (67) of 'An Old Sussex Bee-keeper' ('Preserving Fruit in Honey'), in this week's number of the *Journal*. To those bee-keepers attending shows it would add greatly to the attractiveness of their display to have a variety of beautiful, well got-up bottles of cherries, grapes, apricots, &c., preserved in honey. Also I can say with the 'Country Bricklayer,' that I am of the same opinion as Mr. McNally with regard to a national competition of honey in small quantities. Perhaps we like to say so because we are near 'the bonnie Hieland heather.'—George McLean, *Beauly, Inverness-shire, N.B., Feb. 20th.*

BE MERCIFUL.

[84.] Having been a successful bee-keeper for fifteen years, will you permit me to say a word in reply to your correspondent (No. 70), in last week's *Journal*, with regard to tits? My apiary is situated in wooded grounds which abound in birds, but I have never found the tits take bees in any quantity; they pick up dead ones, and especially at the time when the drones are being turned out of the hives the tits are very busy in the apiary.

If your correspondent had watched carefully these pretty little birds, perhaps he would not have found it necessary to resort to such a mean and cruel act as to put poisoned meat for them; and his 'friend's' advice to leave their bodies lying about to poison cats is on a par with it. Surely your correspondent has more consideration for his neighbours than to wish to poison their cats! But irrespective of that, if he is not careful what pranks he is playing, he will find that he has rendered himself liable to a penalty of 10*l.*—A Lover of Bees, Birds, and Cats.

Do everything in the apiary just at the right time. One hour's work done when it is needed is worth two or three at some other time.

'The bee is a Granger,' says the *Detroit Free Press*, 'and started the first co-operative store; established the first savings' bank: and organized the first mutual aid association.'

Query and Reply.

QUERY.—I put sugar cakes over the frames of my hive in October, and I now find them all gone. Am I to suppose from this that the bees are in want of food, or do they store the sugar below in the frames? It is too cold to examine the frames. Will white sugar do as well as brown for dry-sugar feeding?—EVAN FRANKS. 2 *Crown Hill, Upper Norwood, S.E.*

REPLY.—It does not necessarily follow that, because the bees have disposed of all the sugar cakes over the frames, they are short of food. This depends entirely upon the amount of stores left them in the autumn. Owing to the mild weather bees have been very active, and they frequently consume the cakes before they touch the sealed stores below. In damp, warm autumn weather, bees sometimes store the food below. If you have any doubt about sufficiency of stores to carry the bees on for another month, give them cakes of candy, and slip them under the quilts with as little disturbance as possible. You can easily ascertain if there are still sealed stores by lifting the edge of quilt, and looking along between the top bars. Demerara sugar is the best for dry-sugar feeding, but Porto Rico may be used. White sugar is too dry unless powdered very fine and mixed into a stiff paste with a little honey.

Echoes from the Hives.

Odcombe, Ilminister.—I took advantage of a bright hour this morning to take a peep at the interior of my hives, twenty-three in number, which I have not done since the end of September last. Of course, I could not make a thorough examination at this early date, but I saw sufficient to convince me that all were well, and had sufficient sealed stores to last them till I commence feeding, about the middle of March. I did not feed my bees at all before putting them right for winter, as I take no honey from the body of the hive; but I endeavour in the autumn to distribute the total amount of honey in the body of the hives equally between them all, as at that time some will be found with a very large population and small store, and some quite the reverse. My bees have had no extra packing for winter, but they have thorough good, dry hives, and plenty of ventilation between the two quilts which cover them and the roof.—J. SARELL.

Honey Cott, Weston, Leamington, February 14th.—A few cold days, and last night a slight fall of snow, which soon melted after daylight: the sun shining brightly towards noon fetched out the busy bees. I, as yet, only just casually looked over a few stocks that I thought might be getting short. I did not find them very bad off. When it is a little warm they are on the look-out on the snowdrops and after water, showing they are on business bent. Some friends, to whom I have mentioned about the 'tomtits,' think they do no harm to the bees; I can only say, if they could see the tops of some of my hives that are under apple-trees, and see the hundreds of the husks or skins of bees that are there, they would think 'Tom' was verily guilty. I have seen them fly down and get a bee, and up into the tree, down again, and so on, almost *ad infinitum*. The rascals, too, have pulled out blocks from entrances in some cases. There is no mistake about it, since I have had a few shots at some of them they are very wary. JOHN WALTON.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

J. MCLENNAN.—*Dead bees.*—It is quite impossible to say whether the three dead bees you have sent are affected with foul brood. They are dried up, and immediately on death various bacteria of decomposition make their appearance, so that an examination would be useless. For this purpose it is necessary to have live bees, but even with these an absence of foul-brood bacteria would not indicate that the colony is not diseased, it would only show that the particular bees examined were free from it. The best way of ascertaining is by examining the brood, and for this purpose a piece of comb containing brood should be sent.

W. PERKINS.—*Value of Book.*—Bevan *On the Honey-bee* is only of value as a book of reference, as for practical bee-keeping modern books give all the information necessary. The different editions have different money values. The 1827 edition can be had for about 10*s.*, the 1838 edition for 3*s.* 6*d.* to 4*s.*, and the 1870 edition, revised by Major Munn, can be procured for about 6*s.* to 7*s.* 6*d.* They are all out of print, and can only be picked up at second-hand book-shops.

T. BOOKER.—We cannot.

CRYSTALLISED.—There is no way.

J. AP JENAN.—Transfer to a new hive. Bingham smoker.

B. E.—You must not attempt any stimulative feeding yet.

O. A. P.—Yes; your plan will do.

A Chinese version of the saying, 'How doth the little busy bee,' is as follows, and was sent to us by one of our subscribers:—

'How? Sie belly small chin-chin sting-bug
Im-im-implove ebly slixty minnit all a time.
Go, pickee up sting-bug juice all a day
All kin' places 'loun' flowels just got busted.'

THE

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Editorial, Notices, &c.

BRITISH BEE-KEEPERS' ASSOCIATION.

The Conversazione.

(*Continued from page* 101.)

Subsequent to the annual meeting (held on the 18th February), as reported in our last issue, the company reassembled at half-past five, and the first quarterly *conversazione* of the present year took place. The Hon. and Rev. Henry Bligh was voted to the chair, and opened the proceedings.

Mr. Meggy exhibited a section-crate intended for use on skeps or frame hives, invented and made by Mr. W. J. Sheppard, of Woodford, a member of the Essex County Association, who had last year taken a third-class certificate. The rack was suitable for sections or shallow frames, and could be easily fixed by the floor-board to skeps or other hives.

Mr. Jonas thought the crate had too much area, and it would be difficult therefore to keep up the necessary heat.

Mr. Grimshaw considered the sides of the frames too broad, thus preventing easy use of the uncapping knife.

Mr. Cowan was of the same opinion, and after a few words from Mr. Lyon, Mr. Meggy, and Mr. Sheppard, the Chairman expressed the thanks of the meeting to the latter gentleman for kindly showing his contrivance, and complimented him on his ingenuity.

Mr. Meggy showed a specimen of honey gathered near Ipswich, about August, 1888, which was the product of the *Chrysanthemum segetum*, and was objectionable in scent and flavour.

Mr. T. W. Cowan was then asked to address the meeting, and complied by saying,—It was only at twelve o'clock to-day that I heard from Mr. Huckle that there was no paper for to-night, and I have not had time to write one, but I have lately been much interested in the recent investigation of Dr. Planta, on

The Food of Larval Bees,

respecting which I should like to say a few words.

In April, 1887, I brought before your notice a work of some importance, inasmuch as it was one that was about to clear up a rather difficult problem, that had caused a good deal of controversy. The work I allude to was that of Dr. A. de Planta, which gave the results of his chemical investigations into the nature of larval food. To fully appreciate the value of these researches it would be as well if I gave you, as briefly as possible, the history connected with the subject. It has been generally the accepted idea that the food given to the larvæ was partly digested in the chyle stomach. This was the theory of Dufour, and was even mentioned by Swammerdam before.

Leuckart also held this view at first, but when the glands were discovered he thought he was not quite satisfied with the semi-digestive theory, and suggested that the larvæ were fed with a secretion from the different glands.

In the honey-bee there are four pairs of glands: two pairs in the upper part of the head, and called systems 1 and 2; one pair in the thorax, called system 3; and one pair in connexion with the jaws, called system 4. These glands have been described by different observers, but it was Schiemenz who, in 1883, published the most complete work on the subject. Schiemenz was a pupil of Leuckart, and was requested by him to investigate the glands of bees, especially with respect to their being the producers of brood food. The work as far as regards the description of the glands is most accurate, and shows an immense amount of energy and perseverance, for I must tell you investigating such delicate organs as the glands of bees requires considerable patience and manipulative skill.

Although this part of the work is accurate, when he comes to treat of the functions performed by these glands he seems to have gone quite astray, and I believe it is because he started upon the work with the preconceived idea that these glands actually produced the brood food, as Leuckart had suggested. But he is not the only one, for others who have copied Schiemenz and Leuckart have fallen into the same error.

Then Leuckart discovered in 1855 that the worker larvæ were fed with one kind of food the first three days of their existence, and stated that after that they were fed on pollen and honey, or in other words that they were weaned after the third day. Larvæ intended for queens were, on the other hand, provided with an abundance of the same rich food during the whole of this larval existence. Drone larvæ were supposed to be weaned in the same way as worker larvæ.

This theory was to a certain extent supported by the analysis by Schlossberger of the larval food, but he having food given to him from the different cells all mixed, and supposing it to be the same throughout, analysed it in one mass, consequently his analysis was of no practical value whatever.

On the other hand, there was another school of thought headed by Dufour. Those belonging to this school thought that the food of the larvæ was partially digested by the nurse-bees, and that these bees are the young bees in the hive. It was for a long time difficult to understand how this was done, but Schönfeld took up the matter, and from 1854 was at work at it, making investigations and experiments without number. His investigations have been described in the *Bienenzeitung* from the years 1854 to 1883. From practical experiments he found that if he mixed indigestible substances in the syrup on which bees were fed, that these substances reappeared in the larval food, even within six hours, showing that this food could be nothing but chyle, and not a secretion; for if it were a secretion, as these indigestible substances were not able to pass through the walls of the stomach, they could not have appeared in a glandular secretion, and they would not have been found in the larval food. Their presence in the food confirmed Dufour's theory, and completely upset that of Leuckart and his school. Schönfeld did more—he demonstrated how the food was ejected into the cells. The honey stomach is a globular sac with the œsophagus at one end and an opening to the chyle stomach at the other end. This opening has a valve called by Burmeister stomach-mouth (or *magenmund*), and Schönfeld showed that by means of this mouth the bee is able to take honey and pollen when it requires it, or when it is closed can force the honey through the œsophagus into the cells. Below this stomach mouth is a neck and an infolding of upper part of chyle stomach. This Schiemenz supposed was a valve, but Schönfeld has shown that it has quite another use, and is actually brought into play when ejecting brood food. When honey is being forced out, the stomach mouth is closed, and the muscular pressure on the walls of the honey sac causes the honey to pass through the œsophagus. On the other hand, when brood food has to be ejected the stomach mouth is open, and it is brought up to the opening of the œsophagus, so that the chyle stomach communicated directly with this, and the food passes into the œsophagus without passing through the honey sac. In such a case the neck folding into the chyle stomach is drawn out, and the infolding takes place in the honey stomach.

It is very natural to suppose that these investigations caused a good deal of controversy, and there remained only one thing to be done, and that was a chemical analysis of the food of the larvæ in various stages. This work was undertaken by Dr. de Planta, who was not at all satisfied with Schlossberger's analysis. He has been at work for several years in trying to settle the question, and has had considerable difficulty in carrying out his investigations. It was not an easy matter to obtain the large quantities of food he required, and keep a careful account of the food at different days of development of the larvæ. You may form some idea of the magnitude of the work when I remind you that I stated in 1887 that he had to operate on 120 queen-cells, 4000 drone-cells, and 10,000 worker-cells. Since then he has been carrying on his experiments and has operated on 4000 more worker-cells, because his results being so different to what larval food was supposed to be by Leuckart, he determined to continue his experiments. Leuckart stated that the larvæ were weaned by having pollen and honey added to their food after the third day, but Dr. Planta failed entirely to find any pollen in the food of worker larvæ, and in repeating his experiments he confirmed his previous ones in this respect.

Now his analysis shows that the different larval foods vary in the following proportions:—

QUEEN.

	Per cent.
Albumen	45·14
Fat	13·55
Sugar	20·39

DRONES.

	Under 4 days.	Over 4 days.	Average.
Albumen ...	55·91	31·67	43·79
Fat	11·90	4·74	8·32
Sugar	9·57	38·49	24·03

WORKERS.

	Under 4 days.	Over 4 days.	Average.
Albumen ...	53·38	27·87	40·62
Fat	8·38	3·69	6·03
Sugar	18·09	44·93	31·51

This table shows the great variation of the food, not only in the different bees, but also at different stages of their larval existence. The drone larvæ receive a considerable addition of undigested pollen in the second period, whereas the queen and worker larvæ have none but what is digested in the chyle stomach. Both drone and worker larvæ have a large addition of honey to their food in the second period, whereas the queen larva has no difference made in her food. The food is produced in the chyle stomach from honey and pollen consumed. In a letter to me from Dr. de Planta, asking for some explanations, he says that two things must first be separated—(1) pollen as found in nature, and which is easily detected by the microscope; and (2) pollen which has been digested in the stomach, as with us meat, cheese, &c. In this last form, invisible yet present, it forms with honey the food of the queen larvæ, and that of the first period of the drone and worker larvæ. The worker larvæ get a larger proportion of albumen than even the queen, and Dr. Planta considers it is because of the small size of the cells, and the small quantity of food administered to them by the nurses necessitating a more nourishing form of food for their development.

The drones are therefore weaned from the fourth day, by the addition of natural pollen in an undigested state. The worker larvæ are also weaned, but in a different manner, for instead of having undigested pollen given them they continue to be fed on digested food, with the addition of honey only. Under the microscope at no stage of development of the queen or worker larvæ was any free pollen found, nor any skins. Dr. Planta repeated the experiment over and over again with the same result, and those who have stated that worker larvæ are weaned by having undigested pollen added to their food in the second period of their existence, have erred, or have repeated Leuckart's error.

Very different is it with the drone larvæ. After the fourth day a large amount of pollen in an undigested state was found. Professor Kramer made several microscopical examinations, and found in one milligramme of larval food, occupying a surface of 1440 mm. square, the immense number of 15,000 pollen grains. Besides this it will be seen from the table that a considerable quantity of sugar in the shape of honey is added to the food. Dr. Planta considers this method of feeding the drone larvæ as a saving of time to the workers. The first four days they feed them liberally on rich food, to rapidly develop the larvæ, and then, when they are strong enough, they give them pollen and allow them to digest this themselves, and reduce the quantity of digested food they give them. It is easy to understand the saving of time to the bees by bearing in mind the large quantity of pollen found in the food.

Dr. Planta is the first who has made a separate analysis of the food on different days and of the different bees, and he is also the first who has by his experiments corroborated Schönfeld's opinions.

It is easy to understand how former observers have gone wrong: if all the food taken from worker and drone cells over four days is mixed up, of course pollen will be found, and this misled Leuckart and those who have followed him.

These experiments of Dr. Planta show that the food of the larvæ is a digested food, and fully corroborate Schönfeld's theories—that the bees also are able, and do vary it in various proportions, whereas, if it were a secretion only, as claimed by Schiemenz, it could not vary to such an extent. I do not wish you to understand that the glands take no part in the feeding, for Schönfeld, Holz, and others, admit that secretions may be added to the food; but what I want to impress upon you is, that they do not form the actual mass of the brood food, as taught by Schiemenz and his school.

The subject may not be interesting to every one, but these experiments have a practical bearing on bee-keeping, more especially on queen-rearing. Leuckart found that the first traces of the ovaries appeared in the larva after the third day of its leaving the egg, and this is just the period at which the change of food takes place. In the larva intended for a queen the rich food is continued abundantly to the last, and this has the effect of fully developing the ovaries. On the contrary, the change of food in the worker larva stops this development. If, therefore, we want good queens, we must see that we rear them from larvæ that have been abundantly fed on the rich nitrogenous food from the commencement of their existence.

There are other aspects of the question, but I have already detained you longer than I had intended. I have, therefore, not the time to enter into them; but I think I have said enough to make you see the value of this work. The question of brood food, I think, is now definitely settled, and we may take it for granted that it is produced in the chyle stomach, and ejected by the mechanism I have described.

Mr. Grimshaw said he felt sure they would all feel grateful to Mr. Cowan for his excellent address. Speaking for himself, however, he felt pained, because Mr. Cowan had shaken to its foundation one of his (the speaker's) pet beliefs. He (Mr. Grimshaw) agreed that the food given to worker larvæ was a production of the chyle stomach, and was, so to speak, pumped back again, but he could not but think that the highly charged nitrogenous material which the queen larvæ fed upon was so entirely different from the food Mr. Cowan had told them about as prepared in the chyle stomach, that it must be evolved by some separate process. There were four sets of glands, and he would ask what were the uses of them if not to provide the highly nitrogenous food the queen was fed upon? Mr. Cowan said for deglutition and assimilation, but that was not sufficient; and until a proper use for these glands was found other than the one hitherto supposed, he must cling to the old theory. At any rate, the analysis of the various foods was so startling that he was bound to give the matter serious thought, and express his opinions with great deference to the quoted authorities.

Mr. Cowan said that Schiemenz supposed all the glands to take part in the production of the brood food, although No. 1, he said, was the principal source; but Schönfeld did not hold that view. In the first place, the glands were very small in proportion to the quantity of the food—in fact, too small to be able to secrete the immense amount of food that was necessary, to say nothing about its variation in the different larvæ.

Mr. Grimshaw believed that heredity among bees was carried down by means of brood food, and it was necessary for his argument that the food given to the brood should pass through the system of the nurse-bee in order that heredity might be transmitted. He held that the instincts, which the worker-bees had, could only be handed down from worker to worker by food passed through the system and given to the brood; that such food was a secretion of one or two special glands, but that the rich nitrogenous food was a distinct mammary secretion. The establishment of Mr. Cowan's theory would totally upset his (the speaker's) view of heredity.

Mr. Lyon understood Mr. Cowan to say there was an absence of pollen remains in the food supplied to bees up to the third day. If so, that would support Mr. Grimshaw's theory of secretion. After the third day the secretion was discontinued, and the semi-digested chyle pumped through the œsophagus into the cells for brood nourishment.

Mr. Cowan said that in the case of the drone larvæ only was free pollen found after the third day.

Mr. Grimshaw explained the absence of pollen by stating that there was a filtering medium which prevented the husks being pumped back, the feeding valves being provided with hair, which would stop the regurgitation of the pollen.

Mr. Lyon remarked that Mr. Cheshire had been able to find out what flowers had bloomed in any particular district by making a microscopical examination of larvæ showing the remains of pollen husks.

Mr. Cowan said Mr. Cheshire had stated that in worker larvæ there was undoubtedly pollen added to the food, and that the pollen grains were living and found in a growing condition, which was a mistake.

Mr. Meggy said his views exactly coincided with Mr. Grimshaw's, and he thought that in the present state of knowledge they might fairly accept a portion of each of the theories advanced.

Mr. Cowan said that Schiemenz and Leuckart distinctly stated that the food was the produce of the glands, while Schönfeld had shown that it was possible for the bees to eject the food from the chyle stomach. The latter authority, however, did not deny that the glands contributed to the food, but he did affirm that they were not the sole producers of brood food. He (Mr. Cowan) would like to ask Mr. Grimshaw how he supposed the bees forced out the glandular secretion?

Mr. Grimshaw could not answer that, but said many extraordinary facts could not be explained. He would ask how it was that the fertile worker by simple excitation of the ovaries was able to lay drone eggs?

Mr. Lyon would like to know, if heredity was controlled by food, whether there would be any difference between the eggs of a Ligurian queen when nursed by black bees, and the same eggs when nursed by Ligurian bees?

Mr. Grimshaw said no doubt there would, but of course special changes could not be traced in two generations, but might take hundreds of years to produce. Mr. Sambels had given important evidence on that point. He believed that the character of the bees (whether quiet or vicious) was governed not so much by the queen, as was generally supposed, but by the nurse-bees.

Mr. Cowan said, with regard to the salivary secretion in the human being, we could spit that out; but the bee had no power of doing the same, but could only pour out its secretion on the foods coming in, and the outlet is just in the right position for this.

Mr. Glennie and Mr. Grimshaw agreed that if a vicious hive were started in an apiary, and a succession of vicious bees followed, each colony would probably become worse and worse, and it would be better to destroy the lot and start afresh. There was no doubt that vicious bees were much more prevalent at the present time than formerly, a fact to which Mr. Lyon bore testimony.

Mr. Cowan exhibited a diagram of bee-clustering during winter, showing the variation in temperature of the cluster side by side with the variation of temperature in the open air.

Mr. Cowan moved a vote of thanks to Mr. Bligh for presiding, which was seconded by Mr. Glennie, and briefly acknowledged.

On the motion of Mr. Lyon, a hearty vote of thanks was passed to Mr. Cowan for his interesting and instructive address, and the proceedings were brought to a close.

USEFUL HINTS.

Weather.—The unusual mildness of the opening weeks of the year has been succeeded by a cold and unusually dry time in February. Bee-keepers whose stocks have abundant stores and are well protected with dry coverings need not regret the spell of easterly and north-easterly winds. In the course of the winter there have been several occasions when the bees have been able to take cleansing flights, so that there has been no abnormal confinement to the hives. But the comparatively high temperature of January has probably led to a considerable consumption of honey. It bade fair, also, to bring on an unusual forwardness of the fruit blossoms, with more than ordinary danger to them from spring frosts. Thus a double mischief was threatened—present and future scarcity of supplies.

Candy and Pea-flour.—Should warmer weather come on, it will be advisable to take advantage of some genial day for ascertaining what amount of food each stock possesses. We hear from many quarters that bees are getting short of stores. If any doubt of a sufficiency exists, candy or sugar-cake should be given. If any considerable quantity of brood is coming forward, pea-flour may, with advantage, be supplied as nitrogenous material, till the crocuses and catkins of various kinds afford a natural abundance of proteid-forming food. It is best given in shallow soup-plates, or in large saucers. Over it hay or straw chaff should be sprinkled so as nearly to cover the pea-flour. Of course, it must be so placed that no rain can get to it. To attract the bees, a small piece of honey-comb, partly burnt to make it odoriferous, may be laid upon the chaff. When once workers have tasted the easily reached provender, they will continue to show their appreciation of it.

Dead Stocks.—If there is reason to suppose that any stock has perished, the real state of the case should be ascertained the first day the bees are freely flying from other hives. Should the

misfortune have occurred, the dead bees should all be carefully removed from the combs and floor-board. A search should be made for signs of foul brood. If, happily, none exist, the hive and cleared combs should be put into some dry place. As a further preventive of mildew, the combs may be sprayed with a solution of salicylic acid (No. 1 in *Guide-book*). Should the wax-moth have made any ravages, the combs should be exposed to the fumes of burning sulphur, to destroy the larvæ or the vitality of unhatched eggs. In putting away hives with empty combs it will be necessary to stop up all apertures by which the wax-moth might enter. Otherwise, combs previously free from this pest may be found, when wanted later on, to have been seriously damaged.

Soil around Hives.—During the stormy weather of the coming month, when bees are often freely flying, they are apt to get blown to the ground as they make for the hive entrances. Tired with their efforts, and possibly a little chilled, many will perish if they alight on wet grass or very damp soil. Dry ashes, or sawdust, or a mixture of the two, well strewn about the front of the hives, or even all round, will save many an exhausted worker from untimely death, by preventing further loss of heat, and so giving a chance, after resting, to rise and reach the entrance to home and warmth. Where alighting-boards do not slope to the ground, dry ashes can be heaped up, so that the bees may crawl up easily to the entrance.

Water.—Should breeding be rapidly going on, and should the month of March prove dry, as it usually does, water in shallow pans, with plenty of stones, shells, or corks cut lengthwise, for alighting and standing places, should be provided in the neighbourhood of the hives. If the workers have to go far in search of fluid, so necessary at this time of year, many will perish from chill. Later on, when thin syrup can be given, and when the temperature is more genial, the natural supplies of water may suffice till the heats of summer arrive. When, however, the bees have once learnt to look for a supply of the liquid at a particular spot, it is well for them to be able always to depend upon it. As water costs nothing, and the trouble of furnishing it is small, it is advisable to see that the pans are never allowed to be dry. Thin wooden floats, with holes bored through for the bees to reach the water, or corks cut lengthwise, afford very effectual means to prevent drowning while drinking.

Letting Well Alone.—Where there is no doubt about abundance of stores, where the winter coverings are thoroughly dry and in place, where the entrances are properly clear of bees who have died naturally—in fine, where there is no definite reason for disturbing a stock, we strongly advise to 'let well alone,' and to restrain all curiosity as to brood and so on till the middle of March. Every disturbance means loss of heat and energy. It may possibly, at the hands of a novice, result in chilled brood and in irritation of the bees, which may take days to quiet down, and which may also be an unpleasant factor to deal with when manipulations really advisable have to be attempted.

Foul Brood.—If any stocks have perished from this dread disease, we earnestly counsel the burning of the infected combs and frames. To destroy the latter may seem improvident, but the trouble and uncertainty of thoroughly disinfecting them are so great, and the danger of the process being ineffectually attempted by the inexperienced is so serious, that the cost of new frames is far better incurred than the risk of future and fatal trouble from ill-judged parsimony. Of course, the existence of foul brood in any one stock of an apiary must lead to grave apprehensions lest others should be infected. Should this on examination prove to be the case, we advise sufferers from the plague to consult some reliable bee-keeper as to the advisability of trying to cure, or of destroying such stocks. We would strongly impress all who have foul brood in their hives to remember that they have duties to perform towards their apiarian neighbours—duties which they are as much bound to fulfil as if more serious interests were at stake from infectious or contagious disease prevailing in their households, or among their other live-stock.

DEVELOPMENT IN THE HONEY BEE.

By R. A. H. Grimshaw.

(*Continued from page* 21.)

Nurse-bees, using a salivary secretion to moisten and mix up food, as the worker queen uses it to mix up clay and wax in cell-building, by regular use hand down through what young they leave a stronger and higher development of the parts mostly used by them during life, and also a keener instinct to use them. Descendants from these queen workers desire to act as nurses more than as reproducers or food-getters, and feed upon and feed the brood by honey and pollen brought home by others: this was consumed in brood-rearing as fast as gathered. We see it to-day when little honey is coming in, and the worker is nearly overtaken by the demands of the young population. Even now bees are so eager for incoming stores that they rob, as I put it, the laden bee on the threshold of the west. At the present day, as then, we have a working queen (Bombus), afterwards a merely reproducing queen, specialising her efforts between laying male eggs and other eggs which are not permitted to develop into such as herself. Then, towards the end of the season, these eggs are allowed to arrive at perfection, the queens get fertilised, and are thus prepared, by the help of their instinct of burrowing, for finding a hybernating lodging which sees them into another year, their sole *annus* of life.

With honey-bees it is much the same. Holes in trees, with soft rotting pith, are cleared for a nest-space; the hole, if too large at first, or if it gets larger by decay and use, is plastered up with wax, leaf gum, mud, or any resinous exudation the instinct (and *experience*) of the bee

tells her will stick, until only one bee at a time could pass in or out; defence becomes easier, enemies fewer, the defensive instinct is handed on, nurses at times are called to take part in sentinel work, and the population being so safe-guarded increases in number, until it soon out-numbers the nurses and the cells of the nest. The quiet prosperity of a well-defended home is a suitable condition for wax secretion, or at any rate, and without fear of contradiction, for the laying on of surplus fat, and that is practically the same thing. This in ages would give us what we find now—the instinctive quiet of wax secreting before building. The defending, nursing, wax-secreting queens would fill up the space in the nest with cells of purer wax than that used by less developed bees. We find all these stages gone through now; parts of the nest are made of old wax, &c., used up again; parts mixed with new, with pollen grains, with propolis, and threads torn from quilts; and, finally, parts consisting of the purest wax.

Defensive ferocity against enemies was as yet so little developed (and there is plenty of supporting testimony of this) that queens lived in the same nest amicably together, and were, in fact, more friendly disposed towards each other than any honey-bees are nowadays. The immense increase in nests or hives, caused by the laying of all females, would soon have given rise to the swarming instinct had it not been that enemies were so numerous in their tropic home that all they could do only kept them a place in the ranks of animals then struggling for a life history.

Birds of paradise, of the most gorgeous plumage, flossy masses of soft pendent feathers gracefully arching, flew from tree to tree; toucans darted about with the rapidity of king-fishers, giving richness of brilliant blue and orange colouring to the prevailing tone of green foliage found in the forest depths. At points where light had penetrated, the trunks of the trees were covered with parasitic plants, bearing gorgeously coloured flowers; epiphytal orchids adhered to the branches of trees, and sent out their long roots into the hot, moist air, their only means of sustenance—no rich soil required for them to revel in, only points of attachment to anything. Some of these, rich in lemon scent, produced their golden blossoms growing downwards, others with leaves growing upwards; pierced tangled masses of dead roots, with flower-stems also growing downwards, for only in this way could their chocolate and white-spotted vanilla-scented blossoms make themselves observed by the moths and butterflies required for their cross-fertilisation. If we fancy the homes of these insects to be in an interlacing, almost impenetrable tracery of bare tree-stems, stretching eighty or a hundred feet upwards, to a thick mass of summit-growing vegetation requiring light—these bare stems then form the foothold for parasitic plants to climb by, these in turn being covered by many species of mosses. Out of the emerald mosses emerge orchid flowers of the most intense living scarlet ('spots of flame' at a short distance being not an exaggerated figure of speech). Brown, gold, and purple hues on the same flower, imitating the actual shape of some butterfly it requires to visit it, hiding its nectar at the end of long chambers the exact length of the proboscis of the visitor; protecting itself against robbery by curious contrivances, attracting some and repelling others by agreeable or repulsive perfumes: plants far more dependent upon certain insects, insects still more dependent upon special plants, than the red clover and the humble-bee are co-dependent, these abound in glowing profusion, filling the air with heavy honey scent at the exact hours when the specialised insect takes its flights. Such scents are intensified at sunset: purblind moths flutter about in search of food and mate, their highly sensitive sense of smell, and strong odour being the complement of their mutual wants. Moths with nectar-tongues 16 ins. long—white flowers, richly scented, with nectar-tubes 16 ins. long (*Angræcum sesquipedale*), permit reciprocal payment for reciprocal benefit. For all night-flying insects, highly odoriferous white flowers; for dusk-flyers brilliant scarlets, until we get to the odourless flora of blazing sunlight, which can only attract its insects by dazzling colour and, in many instances, fraudulent baits and bids for services, and for favours to come. These insect-imitating plants are not peculiar to tropical regions; they abound in our own isles, many of them little orchids marching south year by year, their bulb-like living store-roots annually growing and dying on the sunny side in its persistent march towards its seeming source of life. I have found such, almost tumbling over the cliffs on our south coast, having got as far as actually possible; there they wait, reproduced by seed cross-fertilised by the visits of insects, until, perhaps, an upheaval of the ocean-bed brings us new chalk cliffs, on which its travels may be continued southward. The bee, the fly, and the spider orchis of our own country will well repay a little study, if only as types (by their mimicry in leaf and flower) of the more gorgeous sub-tropical species.

(*To be continued.*)

California is a rich honey country, and the fact is largely owing to the cultivation of the *Phacelia tanacetifolia*, a plant with a blue flower of which the bees are fond. Experiments on a practical scale have recently been made with it by a German bee-master, and the results are given in the *Bienenfreund*. Some six weeks after the seeds are sown the *Phacelia* blooms, and it is then rifled by the bees. But it also serves as fodder for cattle, either before it flowers or in a dried condition afterwards. When used for green fodder it is necessary to reserve a portion for the bees and the production of seed grain. The roots as well as the stems and leaves are devoured by cattle.

Extracts.

RACES OF BEES.

(*Continued from page* 89.)

The qualities of the Carniolan bees are great prolificness; exceeding amiability—they are the gentlest of bees; they equal or exceed the German bees as comb-builders, in the whiteness of their comb honey; are very large, and so doubtless have large honey-stomachs; are more quiet on the combs, and more beautiful than are the common black bees. It is also claimed that they defend their hives well, and resist severe cold better than most other bees.

It is further stated that Carniolans are more disturbed by loss of queen than most other bees; are prone to rob when forced to idleness; and, perhaps most objectionable of all, are great swarmers. If this last, however, simply follows from excessive prolificness, and can be easily controlled by an expert apiarist (as I am led to believe, or at least to hope), then the matter is not so objectionable.

If, as already stated, the German bees are promising to cross with other races to produce the coming bee, then surely the Carniolan is pre-eminently so; for these bees possess not only the virtues of the parent bees, but these virtues are exalted in the Carniolans, while they (the Carniolans) are strong in many points where the blacks are conspicuously deficient.

The Italian Bees.

These bees are so well known that I need not dwell long upon their characteristics. Yet, as before with the German race, it is well to point out their leading characteristics as a sort of a yard-stick, to be used in gauging the other yellow races.

The Italian worker is very slightly smaller than the German worker. The three anterior abdominal rings are golden yellow in front and very dark behind, thus giving the three-banded appearance so much admired in these bees.

The rings of hair are grey, and the third and fourth are usually very distinct. These hairs are often very white, and hence arose the albino variety, which, by careful breeding, has become a good variety. (These bees are usually very gentle and very handsome. Further than this I have failed to discover any superior excellence in the albino bees.) The thorax is densely covered with grey, yellow, or brown hair; and beneath the body is usually dark, quite, or near, to the tip. The tongue is longer than the same in the German bee.

The drone is irregularly marked with dark and yellow above, the amount of yellow varying much in different specimens. Sometimes the yellow appears in rings, and often the entire base, and sometimes the whole abdomen is yellow. The hair is dense, and light yellow in colour.

The queen also varies much in colour. Here the yellow is not in rings, but marks the upper portion of the abdomen more or less from the base. Frequently the entire upper surface is yellow, though more often a greater or less distance from the tip is dark.

The yellow colour of the queen and workers varies not a little. Often we find them very dark, or leather-coloured, and, again, a beautiful bright yellow. I am inclined to the opinion that the dull, leather-coloured ones are usually more profitable. It is possible that the brilliant yellow bees have been bred for colour alone, and so they have lost, partially, the more desirable characteristics of activity and prolificness.

It is not necessary for me to praise the Italian bees—their works have praised them, as all experienced bee-keepers know. Their longer tongues enable them to gather where the blacks cannot; hence they are often busy while the blacks are idle; and so for the nonce robbers while the Italians are honestly storing. Though not so eager to rob, they are excellent to defend against robbers. Exceedingly active and prolific, very gentle, quiet on the combs, and the queen easily seen and found, no wonder they have gained a first place in the favour of the apiarian public.

The fact that Italians are not so ready to go into the supers, and do not produce as white honey as the blacks or Carniolans, argues conclusively that an improvement is possible, and also desirable. It goes without saying that the Italians would form a valuable pillar—though possibly not the best—in the foundation of the bee of the future.

The fact that our American Italians are often improved by the introduction of fresh importations proves that nature may breed better than man. Nature only consults utility—the best is always her cry. Man often reaches for beauty alone—beauty as beauty. Hence, while the conditions of their restricted home in Switzerland continually improve the Italians, man's selection may not result so happily, unless very wisely made.

The Cyprian Race of Bees.

These bees are slightly slimmer, possibly a trifle smaller than the Italians, with the abdomen more pointed than is the case with the Italian bees. The two anterior of the three yellow bands are wider than in the Italians, while beneath the abdomen is yellow, nearly or quite to the tip. The scutellum—the little lunule at the posterior end of the thorax—is bright yellow. This, with the under side of the abdomen, forms the most ready means to identify the Cyprian worker. The hair rings are light yellow.

The drones are slim. The thorax and rings of the abdomen are orange-yellow. Each ring on the side of the abdomen is said to always show a black dot.

The queens are small and very slender. Their abdomens are long and ringed, as are the workers', only there are four rings, all of which are dark orange-yellow. The yellow hair on the thorax, and the hair-rings on the abdomen of the same colour, consist of dense, fine hair.

The Cyprian bees are said to vary less than any other race, and are exceedingly beautiful. From their island home we should expect this. Except a lack of amiability, these bees are much like the Italians in peculiarities of habit as well as of structure.

They are very active, very prolific, not prone to rob, excellent to defend their hives against robbers, beautiful to look upon, and the queen is easy to find. That they should be excellent as producers, and cross and irritable, is easily explained. Cold does not thin them out, but enemies are numerous and active. No wonder, then, that natural selection works here with great energy and power.

There are no skilled bee-keepers in Cyprus, so these bees have not been handled much, and we should expect that they would be irritable and impatient of manipulation. There is no doubt but that with more general adoption the objection of temperament would soon disappear.

I cannot but think that it was a misfortune that these bees were so soon given up by American bee-keepers. If, even better than the Italians (as there is reason to suppose, except in point of amiability), then doubtless they would be even better than the Italian bees to cross with the Carniolan in forming the 'coming bee.' I fully believe that, with handling, the Cyprians would be so modified, even if kept entirely pure, that very soon this irritability would be no objection to the experienced apiarist.

The Syrian Race of Bees.

I have had not a little experience with the Syrian bees, and believe them to be the best of the yellow bees. Though irritable at first, they scarcely ever attack a person unless provoked, and, with manipulation, soon become very easy and pleasant to handle.

The workers, when they first come from the cells, are almost like the black bees. The rings are so approximated that the yellow bands are almost concealed. After they expand and commence work, they are much like the Italians, except that they are more yellow beneath. They are a little smaller, possibly, than the Italians, and are more uniform and a little brighter.

The drones are black above and yellowish-brown beneath. The legs are black. Each segment of the abdomen is bordered posteriorly above with brownish yellow. The hairs above, on the thorax, are olive-brown, while on the other parts they are lighter-coloured. Like all the bees of this race, the drones are wonderfully uniform.

The queens are black, with four leather-coloured bands marking the segments from the second to the fifth inclusive. The legs and under side of the abdomen are yellow. Except that they are not quite as amiable—though with handling they soon become very pleasant to manipulate—I believe that the Syrian bees possess all the virtues of the Italians, and most of them in a more marked degree.

It is possible that the laying workers appear more quickly in queenless Syrian colonies than in the case of Italians; but this is scarcely a fault, for colonies should not be allowed to remain queenless; and if such a tendency make the bee-keeper more cautious and watchful, then we may well question whether it be a fault. I will say that we have not found this a matter of any moment.

Again, the Syrians do start many queen-cells. To the careful breeder this is an advantage, and should be no injury to any bee-keeper. The matter of temper, as already suggested, need not count against the Syrians; with handling, it so soon disappears.

Like the other yellow races, these bees are not so ready to go into the surplus chamber, nor do they produce quite as white comb honey as do the German bees.

As the Syrian bees are very prolific, very active, excellent gatherers, breed when there is no storing—due, doubtless, to the fact that, as with no other race, the nurse-bees feed the queen with nitrogenous food, even though the workers are forced to stop gathering; are slow to rob, and strong to defend their hives—in sooth, possess in a marked degree the merits of the yellow races—they are pre-eminently the bees to enter into the make-up of the 'coming bee.'

From the fact that the Syrian bees lack two important characteristics which are emphatically marked in Carniolan bees, it goes without saying that the Carniolan race is the one most desirable to cross with the Syrian to produce the bee of the future. I cannot but believe that a cross or hybrid will form the basis of the 'coming bee.' All science points that way. No objection—no valid objection—says nay. With our present light, these two races—the Syrian and the Carniolan—stand out prominently as the base stock on which to build. I am strong in the belief that there is much to hope from experiments in this direction.

Mr. Frank Benton, whose ability and experience combine to give his words greatest weight, places the Syrian bee as first of the yellow races, and the Carniolan bee as first—everything considered—of all bees. Granting, then, that the great improvement of the future is to be the carefully selected offspring of a cross or hybrid (as any scientific breeder, I think, must grant), then we are surely warranted in recommending every breeder who wishes to work for the best, and in the most promising lines, to unite these two races; and with a fixed ideal in his mind to work towards, carefully select and reject and I doubt not but that a rich success will, in the end, crown his efforts.

A. J. Cook, *Agricultural College, Mich.*—*American Bee Journal.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," c/o *Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 1st page of Advertisements.)*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

NATIONAL COMPETITION.

[85.] I hope, Mr. Useful Hints, you have received quite a number of names of those who wish to take part in the contemplated contest (not brass band contest). I find my time is too limited to allow me to make the necessary arrangements that would be required to make it a success, though they would not be very heavy or numerous, I think. Now, if you would kindly undertake the arrangement, and put the thing in shape, which you could easily do through the *Journal* during the coming month of March, and so have everything in order by 1st of April next, I have no doubt we should have a very interesting contest. I shall take my stand by the old natives, so please put my name down.—J. W. BLANKLEY, *Denton.*

['U. H.' says 'Yes;' so competitors please come forward.—ED.]

BEE-KEEPING FOR PROFIT.

[86.] Seeing a letter signed 'La Grippe' (No. 82, p. 107) in last week's issue of your *Journal* with regard to the question of keeping bees for profit, I thought I should make a few remarks on the subject. I must say that I think for the majority of men the prospects offered by bee-keeping are not always encouraging, knowing by some experience the heavy expenses in connexion with bee-keeping to any large extent, and the time, attention, and labour involved. In time, of course, that labour is a '*labour of love*' to the intelligent bee-keeper; but, in a great measure, it ceases to become so to the poor man, at least, with limited time and limited purse, who finds it almost a losing game. To many of such, I fear, it will gradually lose its attractiveness should matters not improve in the matter of price and demand for produce. I am sorry to think it, yet the idea forces itself on my mind that it cannot become a successful industry if present difficulties with regard to prices and market continue, at least, in Ireland, in some districts where demand and prices are very low. Sections at 6*d.* each even cannot pay, I think.

Please excuse me if I have taken a rather pessimistic view of our 'hobby,' but doubtless many of your readers can testify to the truth of my remarks. At any rate, I should be glad to hear the opinion of some on the subject.—GREEN ISLE.

EXPERIENCES.

[87.] Having been a subscriber to your most interesting little paper, the *B.B.J.*, for some time, I am thinking of commencing bee-keeping myself, also some of my friends, and being anxious to commence at the proper time, should be glad of any information your readers could give me, as often, wrongly advised, the object in view turns out an utter failure, and is consequently given up in despair. Now, Mr. Editor, I reside in the beautiful valley of flowers commonly called Cleeve, close by the celebrated Cleeve Abbey. Hemmed in by the Quantock and other hills, seldom do we get any snow, and right under my house are the hills keeping at bay the north and east winds, facing the south; near it a railway running from Taunton to Minehead, and a prettier and more fertile valley cannot be found for tourists and excursionists during the summer months. In the immediate neighbourhood a quantity of beans are grown, and scattered fields of clover; fruit blossom also abounds in the season, and about three miles from the hill, which is covered with heather blossom. Some advise me to commence with old stocks, and others advise me to start with a swarm in May. Will you, or any of your readers, kindly advise me through your columns? Seeing I have described the locality, you will be able to judge the kind of bees and best time to commence.—T. R. W., *Somerset.*

[We should advise you to start bee-keeping by the purchase of swarms as early in May as possible, and these should be from hives which were known to have swarmed last season, because the queens of such swarms would be in their second year and in their prime. Get some manual such as *Modern Bee-keeping* (6*d.*), or *British Bee-keepers' Guide-book* (1*s.* 6*d.*), and if you are in any further difficulty apply to us for advice. You ought to do well in your district.—ED.]

CHIPS.

[88.] A GOOD SMOKE.—It is, perhaps, unnecessary, or should be so, to remind bee-keepers to keep the nozzle of the smoker clean and the holes of grating well poked out, and so save time, temper, matches, and stings. A fusee is a capital thing to light up with—drop it in the smoker as soon as struck.

WEEDS.—It is quite right for the bee-keeper to keep the ground near the hives free from weeds; but it is not necessary that he should rush about and stamp on them, striking out with his hands and swearing all the time!

THE HONEY CROP last season was, as far as I am concerned, below the average; just at the critical times the weather was bad—a most tantalising season; and if it had not been fine for four days at the end of July the crop would have been very bad. A large part of our early

honey is gathered from the sycamores, and the scarcity of seeds on them was very noticeable later in the season, in place of the great bunches usual. There was little of that honey smell about the apiary which so gladdens a bee-keeper's heart.

SWARMING.—Yes; for a non-swarming apiary the bees had a fine time of it, what with several times disturbing my slumbers at an early hour in the morning, and five or six swarms going into a neighbour's thorn hedge! I wonder why they always think your neighbours' trees and shrubs the best?—and why the pony wanted to smell the straw skep, and why it suddenly galloped off with its head in the air? I will give the first cross Carniolan and black bees the palm for working *when* they are not swarming; but whilst I was worrying the appliance dealer for frames, they and the pure Carniolans started cell-raising, and swarm they would.

EXCLUDER ZINC.—I am a convert to its use for extracted honey. Both last season and the previous one I had heaps of brood and bees, but very little honey in some cases. Last season a third-rate stock, with excluder, gave more honey than some first-raters with a too predominating queen. In fact, a stock worked for sections, and which had an artificial swarm taken from it in May, yielded more in sections than better stocks, with unlimited brood-nest, did in extracted honey. I don't say it would suit every one, but I am confident that during any one of the last four years I should have obtained more honey and had a great deal less dirty work by its use.

SULTRY WEATHER.—'It'swarm work this morning,' said Jones, mopping his face as he hived his fifth, and saw the next one making for the favourite tall tree.

WANTED.—A good and cheap method of packing sections during their transit from the grocer or dealer to the customer. The ornamental boxes are very good, but much too expensive, and, besides, are useless afterwards to the average customer. Something is wanted to cost not more than 3*d.* per dozen. Sections are usually cut out into glass dishes in the kitchen, and, therefore, expensive boxes merely for delivery are a great waste and tax upon the poor bee-keeper's already too microscopic profits. If put into an ordinary paper bag, and then among the multifarious articles in the grocer's basket, the chance of the section arriving in good condition is very small.—HONEYSUCKLE.

SHALLOW FRAMES.

[89.] In reply to Mr. Read's letter (No. 46, p. 71, issue of 6th Feb.), the 1¾-in. shallow section frame is suitable only for comb honey, or for storing honey in sections for the extractor. Neither it nor the shallow 4¼-in. deep frames, spaced as recommended, 1¾ in. from centre to centre, are suitable for rearing brood; and I do not think it will be found advisable to divide the brood-nest for the small extra room this latter frame will give spaced at any other distance.

Frames 1¾ in. wide, with openings above and below corresponding with those in sections, will keep the sections clean and free from propolis, which they will not be in frames of only 1½ in. in width. It is very easy to uncap these sections, as, no separators being used, the cappings project beyond the wood at the insets.

The inner wire cage in the Raynor extractor is 11 in. square. This will hold six 4¾-in. deep frames, or eighteen sections; the larger-sized Raynor holds eight frames. The frames fit in a box on the hive the same depth as an ordinary crate, the ends of the top-bar resting on the sides of the box, and there would be no necessity for packing them away two deep in boxes of standard size, for if for sale as comb honey, the sections come away from the frames.—W. B.

NEW INVENTIONS, BOOKS, ETC.

UNCAPPING TOOL.—We have received from Mr. Perkins, of Wickwar, a very neat little tool for facilitating the uncapping of irregular comb, or such comb as may from any cause be troublesome to get at with the ordinary uncapping knife, more especially sections where from any cause it is advisable to use the extractor. Mr. Perkins also advocates its use for stimulative uncapping in the spring. It is simply yet strongly made, there is nothing to get out of order, and we are given to understand it will be shortly placed before the public commercially. We have not yet had an opportunity of practically testing it, but, judging from its appearance, consider it a very useful invention.

BALDWIN'S 'INSTRUCTOR.'—This useful little pamphlet, price twopence, is to hand. It combines in a happy manner the information necessary to a beginner as to the management of his apiary (by-the-by, many who are not by any means beginners might learn much sorely needed wisdom from this book), and also a very complete list of every article made for the apiary, whether necessary, useful, or ornamental. The information as to bee-management is the result of Mr. Baldwin's long practical experience in the pursuit. Any one who has had the pleasure of hearing him lecture in the bee-tent will recognise his usual terse, incisive, but at the same time perfectly lucid style.

'If the weather is fair,'
Said the butterfly, jauntily and free,
'If the weather is fair,
I'll go dance in the meadow there!'
'And I,' said the prudent bee,
'Will be early at work, you will see—
If the weather is fair!'

A thoughtful man says, 'Why should the beehive be taken as a symbol of industry? Not a bee is to be seen all winter long, while the cockroach is up at five in the morning, and never goes to bed till midnight. Let's change this thing.'—*Tit Bits.*

Selected Queries.

[1.] *'The owner of a single hive has a natural swarm come off: how should he proceed (honey being his object) supposing the swarm safely taken in a straw skep?'*

In my practice (if I did not want the swarm) I should take off the super and go over the combs of the old stock, and cut or pinch out all the queen-cells, and extract the honey, if there was too much in the outside combs or towards the top corners of middle ones, while the swarm was in the skep, also giving a frame or two of foundation, if I had room for it, and replace super; then set the swarm close to the old stock, as soon as convenient after swarming, and at night pitch the swarm on to a tray, and let them run back into their old home.—JOHN WALTON.

Presuming the single stock is in a frame hive, I would hive the swarm into another frame hive—a makeshift will do—and put the swarm on the stand of the parent stock, shifting the latter two yards to one side. At the same time I would give three frames of hatching brood, without queen-cells, to the swarm. In two days after I would give other three or four frames from old stock to swarm, cutting off all queen-cells as before. The rest of the parent stock, to be treated as a nucleus with a young prolific queen, could be united in autumn, or before the heather harvest. In less than a week the swarm may be ready for supering. Should the honey-flow be on at the time the swarm issued, I would proceed as before, and instead give five frames of hatching brood, without queen-cells, to the swarm. Make up the swarm with five other frames, having comb-*guides* only, and put on the supering arrangement at once, with excluder between. Some advise cutting out all queen-cells, and throwing back the swarm; this, with me, has often resulted in failure.—W. MCNALLY, *Glenluce, Scotland.*

Should the swarm come off three and a half to four pounds weight, and some five to seven days before the main honey-flow, I would care for such and the parent colony so that each were established, the latter in numbers, and the swarm in a new hive, to be ready when the work came. Such a swarm to hand during the honey-flow should be returned to the parent colony, after sufficient and suitable frames (not more than three) have been set up as nuclei, to which all ripe queen-cells are transferred, at the same time destroying any others. Give new frames and foundation in the centre of old home, and more super room; and also further attention to extracting, or take off finished sections if you are limited to one or two supers. Their work satisfactory, and stinging also: you have a 'chip off the old block' in the nuclei to re-queen with. —JOHN H. HOWARD, *Holme, Peterborough.*

I presume that the swarm is hived only temporarily in the straw skep, and that the owner intends to work his bees on scientific principles in order to obtain the greatest returns. He should have a bar-frame hive ready prepared, fitted with full sheets of worker foundation. He should shake the swarm from the skep into the bar-frame hive, and when the bees are settled in, should remove the old stock (from which the swarm issued) to another part of the garden, placing the hive containing the swarm in the place where the old stock stood; the swarm will thus be greatly strengthened in numbers. He should feed the bees for about ten days or a fortnight, when, in a good season, most of the combs will be worked out, and containing a nice lot of brood. If in the early part of the season, sections may now be placed on, or the hive worked for extracted honey. Given favourable weather, the owner may reap a very good harvest. Early swarms, judiciously worked, often store larger quantities of honey than old colonies.—WM. N. GRIFFIN.

I should place the new swarm *on the old stand*, and feed liberally till the skep is filled with comb; then, *if honey was coming in freely*, super, or still better, *remove* the skep, and place sections on an adapting-board over the mouth, as advised by Mr. Jesse Garratt two years ago. —W. E. BURKITT.

As he *ought* to increase the number of his hives, in spite of his desire for honey, he should move his stock some distance, go through and squeeze every queen-cell but one (the ripest), brush bees off half the frames, putting these frames into a new hive near the time (evening) he intends to hive the swarm. Fill new hive (up to ten frames) with empty combs or foundation on either side of the frames, put on a rack of sections, place new hive on the old stand, and shake the swarm on a sheet fastened to flight-board with two or three tacks; prop up hive front and brush the wanderers off with a feather. Build up old stock by stimulative feeding. Or, whilst the swarm settles under the skep (shaded from the sun by some means), go through and squeeze every queen-cell in the stock. At evening hive the swarm in their old home as above directed: next day put on a rack of sections.—R. A. H. GRIMSHAW.

There is no better plan than by first removing sections (if any) from the parent colony and placing them, with the bees that may be in them, in a frame hive which has been fitted up with six sheets of foundation, then moving the parent colony to a fresh location, and placing the fresh hive in the position thus vacated, and at once running in the swarm. More super honey can be thus obtained than by any other method. Where no sections are on the parent colony, the same method can be pursued by placing a rack of sections on the swarm, having one or two ready-built combs in them to act as call-birds.—W. B. WEBSTER.

CORRECTION.—We regret that in the article, 'A National Honey Competition Wanted,' by Mr. William McNally, on page 45, 'Harrington' was given as the address—it should have been 'Glenluce, Scotland.'

Queries and Replies.

QUERY.—I have a room overlooking my apiary which I intend this year to use as an extracting and honey room. The window is of the ordinary sash kind, the top sash sliding down and the bottom up. Will you tell me, or ask through *Journal*, how best to make this window so that any imprisoned or robbing bees that chance to get in may get out without making an entrance to all comers, and without, if possible, cutting the glass?—W. H. LEY.

REPLY.—Do away with the sash-cords, remove the fillets from window frame, so that there is nothing left to hold the sashes in their places. In the centre of each side-bar of each sash fix an iron pin and plate, so that the pins project towards the window frame. Then on the window frame fix four small iron plates, having holes corresponding to the pins projecting from the sashes. The sashes should now easily revolve on the pins. In reversing the sashes, the bottom one must be so managed that the top of it is inside the upper one when the window is about to be fastened.

QUERY.—I have five stocks of bees (swarms of last year) which I wanted to move about one mile distant, as I am about to change my residence. Could I do it now, or had I better wait another month or so? and also could I do it without moving them the specified two miles, as that would give me great trouble and expense? I hope you will excuse these simple questions, but as I am only an amateur of two years' standing, I am rather afraid of venturing too far.—A. BAXTER, *Guildford*.

REPLY.—Bees can only be moved short distances in the depth of winter, when the weather is too cold for them to fly. As bees are flying freely at this time of the year, it would be a very risky thing to do now. We should advise you to take them to a distance of at least two miles, and let them remain there for a few days until the flying bees have got used to the spot, then bring them to the place you want them to permanently occupy. You can do this at any time now.

Echoes from the Hives.

South Cornwall, Feb. 22nd—I inspected my six stocks yesterday, and found five well supplied with natural stores. I hear of some very strong lots in the neighbourhood. Spring flowers opening. Lesser celandine abundant. Pollen-bearers at work.—C. R. S.

Denton, Grantham, Lincolnshire.—Not having seen an 'Echo' from our shire lately, I send you one. Nine bar-frames, one skep—pure natives—were my stock-in-trade, packed away for winter in fair condition. They all answered to the roll-call last week, as on a mild day I took a quiet peep under each quilt. I did not fear about any of them, as never a stock of mine has died during the winter season (boasting excluded) since I have been a bee-keeper. I am wintering on a little different principle this year, but cannot pack it into an 'Echo;' perhaps it may come in its turn, as it is so far successful. I may say every roof has stood the test, and not a damp quilt anywhere; but for sweetness' sake all the quilts save the two bottom-most were removed and exposed to the sun for an hour or so. Nearly all had an abundance of sealed stores and strong in bees, six or seven remarkably so. Everything was again made warm and snug with the aid of a few more quilts and layers of paper between. Saturday, Feb. 15th, was a merry day amongst the bees here. I saw one little chap loaded with pollen. Many were evidently after water, which leads one to think breeding has commenced. I think we will want the bees ready a good three weeks sooner this year. What do you think, sir?—LINCOLNSHIRE NOVICE.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

MISS E. GRIFFITHS.—You can do nothing; this is the ordinary mortality among the old and weaker ones.

A. EVERETT.—If the frames are in all other respects suitable, you should experience no difficulty in cutting three-quarters of an inch off each end.

H. J. WISBEY.—We will meet your wishes.

E. H. MATTHEWS.—Thanks, we have already published information on the subject.

G. CUMMINS, T. HODGSON, and H. CRAWLEY.—We thank you for your kind words of appreciation.

HORTUS.—*Mouldy Combs.*—If the combs are not in a very bad state we should extract all the honey and then spray them well with salicylic acid solution (No. 1 in *Bee-keepers' Guide-book*). When dry they can be stored for future use. If they are very bad it is better to destroy them than run any risk of disease.

J. PERCY.—*Brittle Foundation.*—You can make the foundation tough by putting it in a warm place. Cold makes it brittle.

A. E. & A. M.—*Bees in Greenhouse.*—Yes, they will do in the greenhouse if you can arrange so that the bees cannot get inside, otherwise many would be lost. You would also have to protect the hives against the great heat of summer, otherwise the combs would fall down.

H. G. F.—Thank you. Your best time to begin is with a swarm in May.

INQUIRER.—The portrait and sketch you allude to will appear in due time. We thank you for your efforts to circulate the *Journal*.

THE

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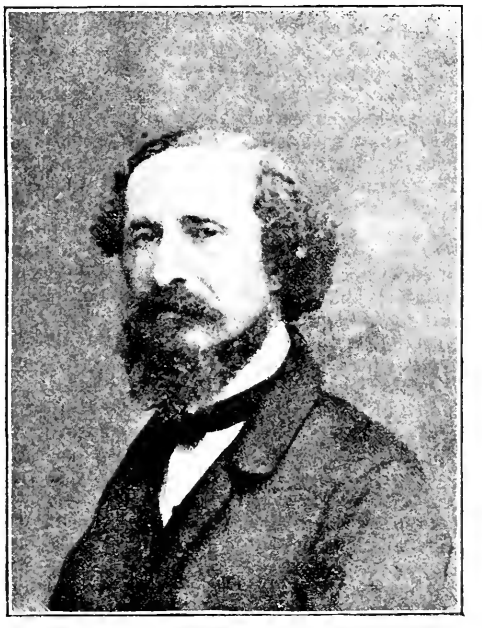
Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 23.—THOMAS WHITE WOODBURY.

Few men did more for bee-keeping in England at a time when the pursuit was little known than Thomas White Woodbury, who, by his writings and improvements in hives, was one of the pioneers of modern bee-keeping.



THOMAS WHITE WOODBURY.

Mr. Woodbury was born in London on the 18th December, 1818. He was an only child, and being delicate, his father, who was a distinguished linguist, decided on leaving his literary pursuits in London, and settling with his wife and son in Exeter, after this son had reached the age of fourteen. There he entered into partnership with the proprieter of the *Exeter and Plymouth Gazette*, the leading local newspaper. The son's delicate health visibly strengthened in the new residence, and when about seventeen he himself took part in the literary and business labours of this paper, to which he often contributed articles both in poetry and prose.

It was about this time that he began to keep bees, for from a child he had always been fond of dumb animals. When about twenty, happening by chance to meet with Taylor's *Hand-book of Bee-keeping*, describing the way to make wooden hives, he determined, as he was particularly fond of carpentering, on making a hive of his own. He succeeded well with his hobby, and many were the friends who came to see the bees in their original-looking hives. From this time dated his predilection for the wonderful insects, and with a short break he kept his winged favourites to the end of his days. It was not till 1849 that he retired into private life, and he then devoted himself more than ever to bee-culture.

When he married, at the age of twenty-eight, his favourite pursuit was continued at his residence in Edgbaston. He remained here between two and three years, and having withdrawn from business, he removed to the neighbourhood of Exeter, Mount Radford, where he was frequently to be seen in his garden surrounded by his bees. Some years after his return to Exeter, the great trial of his life came in the death of his only son, to whom he was passionately attached. His overwhelming sorrow caused him for a time to give up bee-keeping, and it was years before he resumed it. When he did so, however, he speedily threw himself heart and soul into his old amusement. He made his own hives, and introduced what is known as the 'Woodbury' hive, the hive with which we first commenced bee-keeping.

From the year 1858 he furnished contributions to horticultural journals. His articles, signed 'Devonshire Bee-keeper,' excited much interest, and he edited for some time the apicultural department of the *Journal of Horticulture*. In 1859 he introduced the Italian bee into England, which he multiplied with great success. He also introduced the Egyptian bee, but it proved so fierce that it had to be destroyed. His correspondence in the *Times*, and controversy with Dr. Cumming, the '*Times* Bee-master,' caused much attention to be attracted to bee-keeping in 1864.

In the summer of 1870 he began to suffer

from an internal complaint, yet recovered during a stay in the country, and returned to Exeter in the hope of full recovery. A few days later he went to rest, and after a short slumber he awoke in violent pain, which suddenly ceased, and he expired at the comparatively early age of fifty-two, after an illness of nine months, borne with exemplary patience. He left a widow and two daughters to mourn the loss of a devoted husband and father.

One of his last works was the superintendence of the manufacture of a hive in which a swarm of *Apis dorsata* should have been introduced into England from India's distant shore, the arrival and success of which was Mr. Woodbury's dearest wish. He was in correspondence with all the leading bee-keepers of England and Scotland, and it was through his letters in the *Journal of Horticulture* that we were first induced to begin bee-keeping. His memory will always be dear to British bee-keepers, for he was the first who used and advocated movable comb hives in England of the type in use at the present day. His racks and compound bars have been removed, but the principle is still the same.

SELLING HONEY.

With the advent of March bee-keepers begin to realise the fact that another season's work is close upon us, and, as the first step forward by way of preparation usually means spending money on needful requirements, it behoves us to give some consideration to the *l. s. d.* aspect of the question, which just now may be supposed to disturb the minds of those who look for a fair return on capital invested and labour involved. It is quite natural for one who has hitherto done well with his bees, so far as securing a satisfactory amount of surplus honey, and yet has been compelled to dispose of his crop at what he deems 'an absurdly low price,' to pause and consider whether something cannot be done towards removing the cause of his complaint.

Occupying the position we do, it may be readily supposed that we receive accounts from correspondents of many experiences, which are never made public by reason of their purely personal character; and yet important issues—as affecting the bee industry—are not seldom involved in these accounts, because, if persons are induced to believe that, by good management, large quantities of a product for which there is a constant demand may be secured to the profit of the bee-keeper, we do harm to that industry if we conceal from them, or fail to recognise ourselves, the changed conditions under which the bee-keeper of to-day labours.

We must not forget that the demand for honey is far from being fully developed; the work is by no means finished when the harvest is gathered in, and an answer must be given to the question, 'What shall I do with my honey?' Fifteen or more years ago British honey was secured in such comparatively small quantities that it was in constant demand at high prices. To-day, the bee-keeper who fancies that the same happy condition of things is maintained is rather annoyed at having any trouble in the disposal of his crop, and when he is compelled to accept 'an absurdly low price,' he writes the editor of his bee journal a sort of undefined complaint that he has been led to believe something which he finds 'is not.' Hence the question, 'What shall I do with my honey?' We fully sympathise with all bee-keepers who are in any difficulty in regard to this portion of their bee-work, and desire it to be understood that we write entirely from the producer's point of view. We have a few hundredweights of honey to dispose of annually, the produce of our own bees, and all the ordinary work required of the bee-keeper in securing it is performed by our own hands, so that in no sense can we be called an outsider, and we are perfectly certain that honey can be produced in paying quantities, and disposed of at paying prices, if it is (1) properly handled, and (2) dealt with in a business-like fashion. It is our purpose to deal with these two points.

HANDLING HONEY is the general term by which is meant preparing it for sale. How much there is still to be learned in this direction, only those who have had experience know; and it is the lack of this experience in dealing with or handling the product, even among quite successful producers, which in a great measure accounts for the disappointment felt and expressed. On the other hand, we need but point to the fact that our largest producers are the last to complain of difficulty in selling; prices may be lower in some years, but the honey sells all the same, because it is handled properly and dealt with on business lines. There is also to be considered the divergence with which men view the question of handling honey: we have known of bee-keepers offering sections for sale to a dealer, and describing them as almost perfect, which were so poor in themselves and so damaged by bad handling as to be almost unsaleable. Others apparently see little difference between honey of the finest quality and that of the poorest grade; while a third class of bee-keeper, who is most difficult to deal with, because he really knows what good honey is, boldly says, 'I don't care what sort of "pot" honey is sold in so long as the *quality* is there.' As well might we assert that a connoisseur would enjoy the sipping of his choice wine out of a soup-basin! A great deal depends on the way in which our honey is put on the market if it is to find favour with the consumer. Prior to the revolution in our industry brought about within the past twenty years, very little was known of handling British honey as a business, except by high-class purveyors as a delicacy for the upper classes. Beyond these there were only the country-folk at markets, who dealt it out in very homely fashion, usually ladling it from an earthenware jar, and the pedlars seen in large towns every autumn, going about with dishes of honey-comb on their heads for sale. These constituted the only sellers of genuine British honey; and as the supply was very limited in-

deed, scarcely equalling the demand, very high prices were got. All this is changed, however, and honey is secured in tons to-day, where less than hundredweights were formerly gathered; we must, therefore, naturally expect some little disorganization while this transition is going on. A demand cannot be created for the enormously increased supply in the space of a year or two; but we can and do hope that all who keep bees for profit will face the new condition of things as sensible men, by placing their produce before the public in the best and most attractive form possible. There is no readier method of learning what 'best form' means than attending a good show where honey is staged in competition, a practical lesson may thus be gained worth pages of instruction; indeed, nothing we know of will so clearly demonstrate the method of making honey sell well as a careful observance of the style of putting up adopted by large producers who are also regular exhibitors. Personally, we consider it of the very first importance that all extracted honey be put up in screw-cap glass jars. Nothing will aid us more effectually in gaining public favour for honey as an article of ordinary household use than the general adoption of this form of receptacle; with it the housekeeper has honey readily comeatable and as readily put away for future use—a day, a week, or a year hence, as may be. Let none underrate small advantages like these; they mean much when considering the handling of honey; and a glass jar, with a screw cap, is a *sine quâ non* in our eyes.

Comb honey in sections requires a treatment so special that the successful section-producer is the bee-keeper who is so natty, careful, and scrupulously clean in his handling of them, that his very method accounts for his success. And it is a fact that many shopkeepers dealing with such a man prefer to buy sections entirely 'unadorned,' choosing to display them, white, clean, and 'toothsome'-looking, but bare, rather than encased in tin, or glazed and ornamented with fancy paper. The contrast in appearance between the produce of different bee-keepers in this matter of handling sections is one of the curiosities of the craft. But we can never hope to see anything like a proportionately large demand for comb as compared with extracted honey; the very fact of the former being to some extent 'perishable' forbids this, so that our chief interest is centred in the extracted product.

The second point for us to consider is 'handling honey' *as a business*. What difficulties, anomalies, and absurdities crowd upon us as we consider this portion of our subject; and how complete have been the failures, so far, to successfully overcome these difficulties! We need not pause here to inquire whether the want of success which has attended the efforts hitherto made in this direction have been due to individuals or to causes not apparent on the surface; but the fact remains that honey companies formed for the purpose of dealing with the product have altogether failed to yield satisfactory results to either the companies themselves or to those dealing with them. It is not very difficult to account for this in the light of a bee-keeper's *experience* which has lately been brought under our notice, and it will serve our purpose in a double sense to print the particulars, as showing, first, how so small a matter as the granulation of honey affects its price; and, second, how very far from satisfactory was the experience of the bee-keeper concerned in his dealings with a company who took up the sale of honey as a business.

The facts are these:—Some honey of an uncertain character being offered for sale in a district wherein dwells a gentleman interested in the welfare of the bee industry, his attention was called to it, and after the necessary inquiries he wrote the producer of the honey in question, who replied as follows:—'Yours *re* honey to hand. Doubtless the sample of honey is some of what I have sent out this year. Last year and before I have had no end of trouble in disposing of my honey after a certain limit as to quantity. I ultimately, by subscribing, became a member of the ——— Co., and sent considerable quantities to be sold on the usual commission, with the understanding from the Secretary that *granulated* honey was almost unsaleable; and this I found perfectly true, because I had ultimately to accept about 5*s*. per dozen for screw-cap jars. This year I have simply thrown all my honey, cappings, old combs, and scraps of honey of two years' standing into a stew-pan, and boiled! with the happy result that the honey—although I characterise it as *beastly stuff* to my taste—I can dispose of more readily than before. It seems a pity that people cannot be induced to buy granulated honey—I mean generally.'

The writer of the above is in no way averse to its being made public, names and all; but we do not avail ourselves of this privilege, for obvious reasons. But what a condition of things is disclosed by the above letter! In the first place, something like 3*d*. per lb. net is the price received by a shareholder in a company for honey jarred off into screw-cap jars; and next we learn, on the authority of the Secretary, that 'granulated honey is almost unsaleable.'

The method adopted by our friend for overcoming the granulation trouble is not one we recommend for general adoption, but the result 'points a moral' if it does not 'adorn a tale,' namely, that bee-keepers must look for help in disposing of their produce to other quarters than that indicated by the facts given above, and the question arises, from whence is this help to come? We have no hesitation whatever in declaring that properly organized County Associations are the only public bodies qualified to deal with honey-selling as a business. Hitherto these Associations, for the most part, have been occupied in spreading broadcast the modern methods of bee-keeping, and one result of their labours is seen in the multitude of persons now taking up the pursuit, either as a hobby or otherwise. So far-reaching have been the efforts of these Associations in some counties

that in the opinion of a few their work is accomplished, and that little further can be done. This is not our view, and it is in the direction here indicated that we consider there is a wide field of operation before them. The creating of a market for the honey of members, and the teaching them to prepare it properly for that market, is one point; and another is, to prevent the possibility of such experience as that of our correspondent here given. The best method of accomplishing this will no doubt require some thought, and a large share of business tact, on the part of the executive; but, being themselves bee-keepers, they may be relied on to find a way of assisting members who require help in disposing of their produce, while leaving other members perfectly free to sell all or any portion of their harvest privately at prices higher than could be realised wholesale.

Finally, we again repeat our conviction that there is no body of men so well qualified to deal with the difficult phases of this question as the executive officers of County Associations, and to these we commend the consideration of the matter, because, while producers go on increasing, as we hope to see them increase, anything and everything that can be done to extend the demand for honey will add to the attractiveness of bee-keeping as a pursuit.

NATURAL SWARMS AND AFTER-SWARMS.

In my previous communication (No. 72) I proposed to offer a few remarks on natural swarms (unassisted); but I must premise that the term parenthetically used does not apply to '*hiving*,' although it forbids all help to the bees in any other form or direction. The term 'natural swarm' I also premise means a first swarm accompanied by the queen-mother of the bees composing the swarm; and the term 'after-swarm' means such swarms, by whatever name known, as succeed the first swarm, and are each accompanied by a young virgin queen, a daughter of the queen accompanying the first swarm.

It is necessary to specify the foregoing as regards swarms, because it is not uncommon for bees, on first swarming out, to lose their mother-queen, in which case they usually return to the parent hive, and await the hatching out of a young queen, when they again issue forth, and by their mode of procedure often mislead the unwary. In a sense they are a *first* swarm, but essentially they are in the nature of an after-swarm, being chiefly composed of young bees, and having with them a young virgin queen.

There are other possible causes for disturbance of the normal condition of a hive prior to its throwing off its first swarm: for instance, the mother-queen might die naturally, through being balled, or through maltreatment by robber or other bees, and in this case also the first swarm might be headed by a virgin queen, and acting erratically, might mislead an inexperienced observer, and cause discussion on fallible premisses. These matters are mentioned to suggest that obscure instances should not be accepted as bases of theories, and further, that they cannot invalidate a rule.

With regard to 'hives,' an empty flat-topped skep is herein contemplated, and a first or natural swarm having been hived within it, and placed on its stand, the bees will so arrange themselves as to secure whatever advantages it may offer, at the same time avoiding, as far as possible, the disadvantages that may be inherent to it, their action very greatly depending on the relative bulk of the swarm, and of the capacity of the hive containing it.*

If the hive be of a size that the swarm can nearly fill it, the bees will cluster over the whole of the top (inside) and partly down the sides, the shape of the mass forming in perpendicular section an outline of the shape of a shallow letter **U**. Should the swarm be incapable of half filling the hive, the latter being quite level on its stand, their whereabouts in it will be a matter of chance, but it is most likely to be near that side of the hive on which they first entered; but if it (the hive) be unlevel, they will, as a rule, congregate in its highest part, which will be near one side of it, and commence building on that side, usually at a right angle to a line drawn from *that* side through the centre of the hive.

Mr. Webster is correct in his statement that the bees of a natural swarm begin by building worker comb, but how long they will continue to do so will depend upon the incoming of honey, and that will be largely governed by the weather. The forthcoming of natural swarms suggests that the weather and the yield of honey have been favourable, and as is well understood, the bees, having at that time full honey-sacs, will be able to build for three or four days, more or less, without liability to serious check, except from possible cold. Under *favourable conditions* the building of worker comb will continue until the bees have built their brood-nest, their power being proportionate to their numbers.

During the first three or four days of their existence as a swarm, heat-production, wax-making, and comb-building will be their chief occupation; but after that time young brood will appear, when the labours of the swarm will be divided, and the demand for nurses and honey and pollen-gatherers will be daily increasing. At the same time, and until the end of twenty-one days, the strength of the swarm will be daily diminishing through bees dying, naturally or otherwise; but after that time their numbers will increase by the hatching forth of young bees, at first by tens and hundreds, and presently by thousands daily, and in a few days many thousands of bees, including all the survivors of the original swarm, will be set at

* I must here correct a word ('always') used by me in line 7, p. 102, which is not *always* correct; I should have said, '*as a rule*.'—C. N. A.

liberty for honey and pollen-gathering purposes, while the young bees will take up the onerous duty of nursing. A heavy swarm that could fill a hive at swarming-time, would, during the twenty-one days mentioned, fill its hive with combs, chiefly, if not wholly, *worker;* but the latter seldom really happens, through contingencies that will presently be made apparent. The *favourable conditions* anticipated above do not include a heavy honey crop, which would militate greatly against the continuance of worker comb-building, for if bees are able by strength of numbers to gather largely they almost invariably begin to build drone comb.

For the first two or three days a swarm has little, if any, occasion for field labour, a vast majority of the bees being already charged with honey in process of elaboration into wax, and small swarms can seldom spare sufficient workers during the first twenty-one days to get more than a hand-to-mouth living. A large swarm, however, after the first three or four days will be able to gather heavily in excess of its present needs during a honey glut, and will build drone-cells in which to store the superfluous treasure; and these drone-cells are, for this reason, liable to be found in any part of the hive, and often in sufficient quantity to destroy, *if left alone,* all hope of the hive's future prosperity. Drone comb is not built in the first year for the purpose of drone-raising, its production is incidental, as stated above; and it is chiefly, in the first instance, used for the storage of honey. It may, however, and often does, happen that, after a first glut, there will be a lull in the honey yield, when much of the honey stored in the drone-cells will be used up by the bees, during which time they will revert to the building of worker comb (if the hive be not already full), until possibly another harvest induces them to build more drone comb for storage purposes, that already built (and emptied of honey) having been taken possession of by the newly stimulated queen to gratify her innate propensity for egg-laying.

This alternation between the building of worker and drone comb will account for the patchiness often found in the combs of skeps when the occupants have been left to their own devices. They (the bees) are wonderful creatures, but, like many humans, they do not know how, in early days, to use wealth wisely.

Fearing to encroach further on your limited space, thanking you for your kindly foot-note at the end of my last paper, and hoping that this may be useful to those interested in the doings of swarms, I beg leave to defer my remarks on casts, or after-swarms, to a future occasion.—C. N. Abbott, *Fairlawn, Southall, March 4th,* 1890.

WOMEN AND CHILDREN BEE-KEEPERS.

Where there are only a limited number of bees kept, say from fifteen to twenty colonies, it appears to me as though the women and children of the family were the proper ones to take care of them. They are at home more than the father, and the children have such sharp eyes; they not only look, but see. It is better than a Kindergarten to draw out and educate their faculties.

Sight and observation are cultivated. How soon the eye of a child will notice bees hovering over a tree, and be off in a jiffy to see if there is not a swarm clustered there. It sees bees driving out the drones, and knows that there is a scarcity of honey, and the colony may be in want. Woe betide the bird or toad that ventures in the apiary of a watchful child, for he will soon wish he 'hadn't.'

The child quickly learns the language of bees. 'Mother, the bees are gathering honey to-day; I hear their happy hum.' 'Listen! the bees are robbing; I hear their angry notes.' 'Hurrah! the bees are swarming; I hear their bugle-call.' There is healthy excitement in this, which all children enjoy.

With the interest in bees comes a longing for flowers. Whether walking or driving they are on the *qui vive* to see where the bees get their breakfast, dinner, or supper—for flowers do not all spread their table at the same time, and invite the bees to their repast. Many a plant heretofore known as only a nasty weed, suddenly becomes a thing of beauty when it is known as a honey plant. Thus, arousing the interest of children in bee-culture will cause them to love their home and its surroundings more, and awaken a desire to help their parents and improve their condition.

Mothers should fix their children's clothes and bee-armour so that they are safe from being stung while working with bees. I have known some brave children who had never known fear, after being badly stung, to ever afterwards refuse to have anything to do with them, saying, 'They pretty nearly finished me once, and I am not going near them again.' Especially was this true of a little girl dressed in short clothes, who bravely undertook to hive a swarm which proved to be a cross one, and stung her body nearly all over. I have hived swarms that I could scoop up in my hands with impunity, and the same day others so cross that every one that fell upon me left a reminder.—Mrs. L. Harrison, 821 *Hurlburt Street, Peoria, Ill.*

In testing beeswax (says an exchange) when it is chewed it should have no disagreeable taste, and must not stick to the teeth. In the adulterated wax the nature of the foreign material can generally be detected by the taste; the addition of fat can generally be readily detected. If it sticks to the teeth, the presence of resin may be assumed. A simple method of detecting the presence of fat in wax consists in melting it and placing a drop on a piece of woollen cloth; after it is perfectly cold and solidified, pour on a few drops of 90 per cent alcohol, and rub the cloth between the hands. The wax will be converted into dust, and will easily separate from the cloth if it contains no fat, and will leave no stain; when it contains fat it will leave grease-spots.—*American Bee Journal.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements*).

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

A LADY'S EXPERIENCE.

[90.] Yes, Mr. Editor, I have at last decided to keep bees of my own, of a new special species, and my decision has been arrived at by the following experience. My husband (a fair specimen of the *genus*) has kept bees for some years—in fact one of his standing jokes is that 'for some years his bees have *kept him*—in 'bacca.' I have, during these same years, not been on speaking acquaintance with these bees, having a special horror of all creatures which shake hands with one finger, like unto bees; but a late experience has proved to me that my husband has discovered a species (he has won several prizes for bees, by the way) which is far more gracious in its demeanour, and it came about in this wise.

It was a bright and mild afternoon last week, and my husband had induced a lady friend then staying with us to witness an examination of a stock, in order to demonstrate his power over them, assuring her of their harmlessness and our immunity if we would only '*keep still.*' After carefully veiling and mutual examination to assure ourselves we had not included means of admission, we sallied forth to the hive where the performance was to take place. The hive had been duly opened, and upon our arrival the great performer was surreptitiously engaged in removing a sting from the side of his nose, and appeared disgusted at our hilarity, emphatically declaring the attacking bee came from an adjoining hive.

However, things seemed quiet, and we gradually approached and listened to a learned exhortation with all due respect. The performance was about to close, when, oh, Mr. Editor! horror of horrors! Yes, indeed, it is there! A beastly bee has invaded me! I feel it creeping up my sleeve. I appeal for help, and hearing the order to '*keep still,*' I heroically suppress a scream and '*keep still.*' Oh, the agony of suspense! I stand idiotically like a semaphore, with arm extended and eye dilated. My friend gazes apprehensively at me, alarm in every feature. I am breathless; my teeth chatter with sudden cold; my hair—I even think of Mrs. Allen's restorer; and still I feel the wretched creature crawling higher and higher. Ugh! The sword of Damocles would surely be a trifle. That brutal husband simply grins, and repeats his cold-blooded '*keep still,*' just as if I dare do anything else! I believe I shall faint, and try to think of a short prayer. Can I dare to smash it? I have not courage. The thing has got above my elbow, and now—yes, it is beginning its return journey. Breathless with terror I '*keep still*'—still as a statue. Gradually lower and lower it crawls. A feeling of hope permeates me. I may yet escape *in*timate acquaintance; and hope revives with its continued outward journey. At last, after quite an hour's absence (that husband says it wasn't a minute) the thing appears in sight below my wrist. Reiterated appeals to '*keep still*' admit of its safe transfer to my husband's palm. He examines it seriously, and coolly remarks, 'It is none the worse for its journey,' and explains it is perfectly harmless. Can he be so great a wretch as to perpetrate a *pun* at my expense?

I am annoyed, after my bravery, to think it was uncalled for, but from his positive assertions and serious face he must be right. I suggest that he should procure me a hive of these bees, which are so harmless, and he says he will see about it, although he fears they will not gather much honey—but I know better. He is jealous of my entering the field. I felt myself quite a heroine before the explanation, and my friend thought so too, but, alas! 'how are the mighty fallen.' So gentle a species, he says, '*could not sting.*' Therefore I am going in for bee-keeping, as there will be no trouble or fear of getting black eyes and a swollen face. Thinking many ladies would take up bee-keeping also, if they could only find stocks of bees of this harmless description, I thought, Mr. Editor, I would publish that there is some chance now of getting the sweets without the perils.—INTENDING LADY BEE-KEEPER.

POSTSCRIPT BY THE 'BRUTAL HUSBAND.'—My amiable better half has asked me to forward her experience to the *B.B.J.*, but, I fear, when she reads this postscript, and finds that the harmless bee was stingless in consequence of its previous attention to me, she will revenge herself by serving me with cold shoulder and cold potatoes for a week, for her intention is thereby nipped before it buds.—HER BRUTAL HUSBAND.

BEE-HOUSES.

[91.] I have a bee-house to hold twelve hives; can get round at the back; it has an open front, with a very close-made fence around the front about eight to ten yards long, so it shelters it well. I think a bee-house is best open-fronted for this reason: when in windy weather the bees fly, sometimes laden with pollen, just as they are going to alight there comes a gust of wind and blows them down to the ground. When very heavily laden sometimes they will rest before going into the hive, and if a heavy storm is on at the same time, they get blown and washed away from the entrance. I say an open-fronted bee-house, about seven feet wide, so that you can do manipulating at the back.

I have two tiers of hives, but would rather be without bee-houses in the summer, for this reason, I think they harbour the moth too much, especially if they are thatched in, which mine is. I intend pulling mine down and having a boarded or zinc house: which would your readers approve of?

I am a great lover of the bees and the *Journal*, but I cannot see anything about a Cambridgeshire Association. I live in Cambridgeshire, and do not belong to any Association, but I should like to. Could I join another county Association? If I could I would at once. Cambridgeshire is a great county, and nothing seems to be done in it.—H. SEAMARK, *Willingham, Cambs.*

VALUE OF BEES IN FRUIT-GARDENS.

[92.] In *B.B.J.* of February 27 you ask for reports upon the above. Below I give you a few facts.

I have about thirty stocks of bees at Beccles, standing at the south end of a long garden, containing a large number of fruit-trees. At the time the trees were in blossom last spring, east winds prevailed, which prevented the bees flying far. The result was most striking. Those trees (plum, apple, and pear) surrounding the hives were *heavily laden* with fruit, whereas the trees in the other parts of the garden, away from the bees, had but *little* fruit upon them. In conversation with the owner of the garden last autumn, he remarked, 'I wish there had been bees all over the garden.'—L. WREN, *Lowestoft.*

[We are glad to have our correspondent's experience, and should be pleased if all who have made observations of any sort with respect to bees and fruit would give us information. The B.B.K.A. is taking the matter up, but before it can be brought to the notice of the Minister of Agriculture all the available statistics should be collected, to show the benefit of bees in fruit culture.—ED.]

ANOTHER ENEMY.

[93.] An old woman living in a farmer's cottage not twenty miles from London had about a dozen skeps of bees, and no doubt did good service to the acres of strawberries, raspberries, and tree fruits which grew all around them.

When the farmer found it out, he turned her out, saying he would have no bees on his farm, as they damaged his crops. I asked the farmer's son if this was true, and he said 'Yes; he could take me over hundreds of acres and point out the bastard cabbages of various kinds which had been crossed with cadlocks and other plants.'

It occurred to me whilst reading the *B.B.J.* for February 27th that if such men as these could be shown the true version, and induced to assist their workmen to keep bees instead of forbidding them to do so under the penalty of dismissal, the B.B.K.A. would have one of the most powerful aids to support them. Let every farmer supply his cottagers with one stock, and take their produce to market with his fruit, then the land will be flowing with honey.—A KENTISH BEE-KEEPER.

MISCELLANEOUS.

[94.] 'La Grippe' (82) hits the nail pretty near on the head respecting the ordinary cottager keeping bees for profit at the present time; there is some truth in what he says about the upper classes keeping bees and flooding the market. Is it not so in many districts? And then we are continually urged to 'work up a home trade'—a local market. I have kept bees now for several years on the modern frame-hive system, have made almost all the bee-tackling I require myself, being in the iron and wood trade, and have had very fair returns in honey from my bees, and I don't know that there is another bee-keeper within one mile and a quarter of my apiary, yet my profits have been very small indeed; in fact, I would prefer not to keep too close an account. And then for the cottager who has to buy his tackling to give ten shillings for a hive (and it is no use thinking of a lower-priced good, serviceable hive), his smoker, sections, foundation, &c., I fail to see when he is ever going to see his money again. But we must not take too sombre a view of it; there is a brighter side, and I for one would much rather dwell on that part of the subject than on the dark. What more instructive, healthy, and innocent pastime and recreation can we lovers of bees find after a day's work than bee-keeping? what can we have nicer on a piece of good bread than a lump of white honey? ('Nothing,' the children say.)

'Assist the impulse,' says our worthy Editor. Yes, we say, by all means; teach the youngsters to keep bees, teach your neighbour bee-farming: but stop! there's something at the bottom of our wicked heart says, 'I don't want another bee-keeper just here; can't sell my honey now.' What we want is ten people to eat honey where only one eats it now. We must educate the masses to consume our produce. 'How would you educate them?' some one says; it is one of the most difficult things to do to try and persuade persons that they are very fond of honey when they tell you they positively dislike it.

The Americans have hit on a good plan for popularising honey as a food and medicine in the shape of their new honey almanac, which seems to be having an immense sale. Isn't that what we want here in England? Who will bring it out?

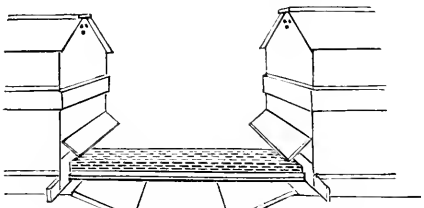
By-the-by, where have our old friends 'A. E.,' 'S. Simmins,' 'F. Boys,' &c., &c., got to? We want to hear from you again. Very pleased to see the ladies contributing to the bee columns; we would thank them for their next. The bees in this latitude seem in thorough good heart so far, and this last month have been unusually busy carrying pollen when weather permitted. This they got from furze, of which there is abundance in bloom here now. Some of our strongest stocks seem, by the amount of pollen

they carry in, as though they must be half full of brood, but they are very quiet now; ground covered with snow and snowing still.—Hy. Neve, *Warbleton, Sussex, March 1st*, 1890.

SELF-HIVING OF SWARMS.

[95.] I was much interested with the description (in the *British Bee Journal* of January 30th) of the 'Self-hiving arrangement' for swarms made by the junction of two drone-traps, the recent invention of Mr. H. Alley, of Mass., U.S.A. Last year, having lost some swarms, and this being my neighbours' experience also, it caused me to study if it were not possible to devise something to prevent such losses in the future; and it is evident I must have hit upon the same idea simultaneously with the gentleman named above, only my arrangement is of a much simpler kind. Some time ago, you will no doubt remember, I brought the matter before your notice, and you encouraged me to make one of the 'devices' I had described, which I subsequently did, and you expressed yourself pleased and interested with it. The cage is so simple that the merest novice in the use of tools can make one in a few minutes. The contrivance is as follows:—First get a thin board of half-inch stuff, 2 ft. long and 6 ins. wide (any sizes can be adopted at the discretion of the maker), next, a piece of queen-excluder zinc, same length as the board, and 9 ins. wide; bend 1¾ ins. on each side along the whole length of the zinc, and tack the bottom of the bent sides to the edges of the board, then nail along each of these sides a thin strip of wood ¾-in. wide, and you have a sort of square tunnel, 2 ft. long, 6 in. wide, and 1¼ in. deep, with both ends open, and a sort of miniature alighting-board along its sides. Place an empty hive in front of the one expected to swarm, draw apart the slides to form an entrance 6 in. wide, and put the above cage or tunnel on the entrance-board of each hive, the open ends of the cage being in front of the entrances of both hives, and the thing is complete.

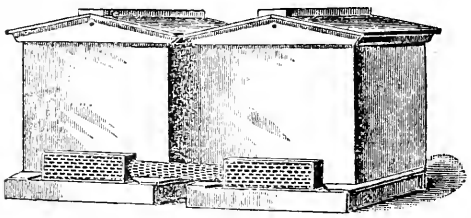
The following sketch shows anything not made



Bennett's Self-hiving arrangement.

clear in my description. Of course I cannot certify as to exact results, as I have not yet tried the scheme; but I have every confidence that the swarm will follow the queen into the new hive, and as it is extremely simple, there will be no complications to bother either owner or bees. Should this arrangement succeed, as I expect it will, there will be no further need for 'pans,' 'kettles,' 'ladders,' &c., as the humblest cottager can make a cage for himself at a cost of a few pence.—Yours, &c., R. Bennett, *Halewood, near Liverpool.*

[We can verify the facts stated above, and the contrivance is substantially the same in principle as Mr. Alley's. Of the two arrangements, however, we prefer that of our correspondent, as being by far the most likely to succeed. When bees are in the act of swarming, they present the appearance of a stream of running water; with wings vibrating, they rush along, half flying, half running, straight on, ready for flight the moment they reach the outer air. With Mr. Bennett's arrangement, we can readily conceive the headlong stream of bees carrying the queen with them straight ahead into the hive fixed opposite for their reception; and though many hundreds might escape through the perforations in the zinc, very possibly the bulk would pass along the roomy tunnel into the empty hive, and *perhaps* (as we hope they will) remain there and be rejoined by the escaped portion of the swarm. On the other hand, the American device seems to us to partly court failure, and we are not a little surprised that one so experienced as Mr. Alley should not have thoroughly tested his plan before making it public. We append an illustration of the American 'Swarm Hiver,' that it may be compared with that of Mr. Bennett, and must say that to us it seems probable that an almost certain 'block' would happen in the drone-trap fixed opposite the entrance, rendering it impossible for the swarm to turn off at right angles, and pass along the narrow tube supposed to conduct the queen and swarm into the empty hive.



Alley's Self-hiving arrangement.

We should not have expressed our doubts of its success had Mr. Alley even hinted at having made a personal trial of the 'device;' but he does not do this. In any case we hope to make trial of the 'hiving device,' kindly sent by Mr. Bennett, during the coming season, and make known the result.

It is comforting to know that 'patenting' is not quite so common here as with our American friends, and that *our* correspondent has but one desire with regard to his contrivance, viz., that it may be found of some use to those of his brother bee-keepers similarly placed to himself, who will take the trouble to make it.—Ed.]

OUR HONEY IMPORTS.

[96.] The total value of honey imported into the United Kingdom during the month of February, 1890, amounted to 657*l*. [From a return furnished by the Statistical Department to E. H. Bellairs, Wingfield House, Christchurch.]

BEES AS MEDICINE.

[97.] I enclose a clipping from the *Western Mail* on 'Bee-stings as Curative Agents,' thinking it may be worthy of a place in the *British Bee Journal*.—W. STURDY.

'INTERESTING TESTIMONY.

'Dr. William Morgan, M.D., of Cardiff, has recently contributed a deeply interesting article to the *Evening Express* upon "What the Bee Can Do," and in the course of it he says:—"Nearly forty years have now passed away since my attention was first directed to the remarkable curative properties contained in the little bee for the treatment of divers complaints by reading an article in one of the North American journals specially devoted to the advancement of the principles and practices of homœopathy and the proving of various medicines (drugs) on the body in health—the only scientific mode of ascertaining their correct medicinal virtues, as applied to disease in accordance with that doctrine. The writer had settled down amongst a friendly tribe of Indians in the State of Kansas, bordering on the banks of the mighty Missouri. One morning he observed an aged squaw bruising a number of bees into a pulp in a crudely formed pestle and mortar, adding some boiling water, and converting the mass into a tea. When asked the use of such a strange mixture, her reply was: 'We give it to the papoose, to remove the dropsy left after the measles and scarlet fever.' Amongst the large number of well-proved medicines which now enrich the pages of the ponderous volumes that form the *Materia Medica Pura* of Hahnemann's (the founder of homœopathy) doctrine, there are very few that excel in value and brilliancy of action in a large number of diseases that invade both the male and the female than the wonderful poison of the little honey-bee. Its sphere of action covers a wide range in the domain of therapeutics, and, like the poison of the rattlesnake, the cobra, and the lachesis, does noble work in all phlegmonous and malignant diseases, both at home and in the tropics. The *Apis mellifica* has in my hands proved a faithful and trusty friend in many cases of acute rheumatism. It has proved a potent remedy in ascites, following enteritis; in general anasarca, following the sudden suppression of some eruptive disease, viz., measles, chicken-pox, and scarlatina. *Apis* has proved very efficacious in certain forms of nettle-rash, furunclus, and other inflammatory swellings, accompanied with burning, pricking, and stinging pains. It will remove styes, erysipelas of the eyelids, and œdematous swelling of the extremities. It has successfully fought true glossitis, and has defeated many cases of malignant sore throat, coupled with that old-fashioned form, the quinsy, with its accompanying symptoms. It covers with marked efficacy certain forms of dyspepsia, indicated by bilious vomiting, with pains in the stomach, as if from needles; a disagreeable rumbling in the abdomen, with a sickly feeling all over. It covers certain forms of hæmorrhoids and constipation. Finally, in the numerous cases of erysipelas which have passed through my hands during the last forty years, some of a mild form, others of the so-called phlegmonous or malignant type, which had to some extent baffled many well-chosen remedies, the little honey-bee invariably came forward and performed some remarkable and astounding cures. May I cite one illustrative case out of many which might easily be given did space permit? In the spring of 1880, whilst in close and constant professional attendance upon one of the most enterprising business men in this country, I had occasion again to test the virtues of the honey-bee virus. My patient was at the time suffering from a most malignant form of erysipelas of the head and face; and the gravity of his condition was intensified by prolonged and severe nervous tension. After trying many remedies with no very satisfactory result, I hastily sounded the bugle—To arms, to arms, my gallant comrades! To arms! The call was immediately responded to by my little warrior friend, who rushed *cap-à-pie* to the rescue, stormed the breach, and saved the citadel. A visible improvement soon took place in the condition of my harassed and exhausted client, and in a very few days 'Richard was himself again.' These and similar facts are eloquent of suggestion, and afford other singular proof of the prescience of that great seer who more than 300 years ago, by force of inward vision, anticipating the development of medical science, penned these remarkable lines:—

> 'In poison there is physic:
> And these news, having been well,
> That would have made me sick,
> Being sick—
> Have in some measure made me well.'"'

[We thank you for your courtesy.—ED.]

INFORMATION WANTED.

[98.] Would the 'Country Ropemaker' who worked the design of the figures '1887' by the aid of his bees, and others similarly experienced, give any information as to where they procured the figures and how they worked them on a crate? Any small information would greatly oblige, and would help those bee-keepers who would like to give honey-comb designs a trial in the coming season.—G. M. L.

TITMICE AND BEES.

[99.] As the subject of whether or not titmice eat bees has again turned up, I wish to say what has been my experience. A few years ago I wrote in the *B.B.J.* that I found the great tit, *Parus major*, to pick up a great many live bees, and since that time I have repeatedly seen them at their destructive work. It is the large tit with a black head that does the harm; the little blue-bonnet, as it is called, is comparatively innocent. At the season when the drones are being expelled I never notice the tits about my bee-garden; but in winter, and now in early

spring, on such days as the bees take an airing, the tits clear them off the alighting-boards by dozens. I never yet saw a tit take a dead bee, and I have often concealed myself near the hives for the purposes of observation. Dead bees may lie at the entrance—as I have allowed them for the sake of experiment—for days, and the tits never touch them; but woe betide the poor *Apis mellifica* who comes out for a moment's sunshine. Down comes a big tit from somewhere, snaps up the bee, and disappears, as if he had a guilty conscience, over the hedge or round the haystack, or behind that beech-tree, whence he chinks and skirls a pretty little note of defiant triumph at me while he completes my bee's funeral.

I am a lover of bees, and birds, and flowers, but I think it possible, as in the case of *Parus major* and your correspondent (84, p. 107), to take too favourable a view of the abstemious practices of the latter. As I write for the *Bee Journal*, and not the 'Caterwauler,' I have nothing to say about the feline tribe, though I have also my views on, and experience of, certain members thereof.—H. W. Lett.

ON N'A RIEN SANS COCAINE.

[100.] In answer to 'On n'a rien sans Peine' (70), on the question of using cocaine as a remedy for bee-stings, I would emphatically say that this alkaloid, the poisonous principle of erythroxylon coca, should never be used for any purpose whatever excepting under medical prescription or supervision. Its chemical formula is almost identical with morphine, one of the most subtle and deadly, yet at the same time one of the most valuable, of remedies. Both these things may be taken to advantage either inwardly or by hypodermic injection in certain cases, but they are so uncertain and fickle in their action that their use, excepting under high medical advice, is to be deprecated entirely. Cocaine, antipyrin, and other fashionable remedies, should be dealt with as tenderly as open penknives in the pocket would be dealt with. —R. A. H. Grimshaw.

PRESERVING FRUIT IN HONEY.

[101.] In reply to the only query on page 60, January 30, of the *B. B. J.*, I have had a little bit of experience, not thoroughly tested yet, with preserving fruit in honey; it is as cheap as it is pleasant to the taste, though it is not as sweet as the sugar-preserved fruits, but keeps the taste of the fruit, and is as wholesome as it is novel. I found the recipe in a German paper, some years ago, and tried it but once. The tallow, on one occasion, moving from Jerusalem to Jaffa, broke, and was not immediately attended to, and the preserve was spoilt, when, after some time, we looked at it. The others were very excellent when we opened them, seven or eight months afterwards.

To begin with, the honey is to be filtrated, taking two parts of honey and one of water, boiling it, and then filtrating it through net linen cloths—the honey is thus ready for preservation. You now take ripe and spotless fruit, pealing them and putting them in fresh water. Take to 2 lbs. of peeled fruit, ½ lb. of filtrated honey, and 1 lb. of fruit-juice of the same fruit; boil it till no scum remains, put the 2 lbs. of fruit in it, let boil once more, and skim it again, putting all to cool in an earthenware pot. Give it another boil two or three days after; rinse the glasses with boiling water, and put the boiling fruit into them, observing by each spoonful of fruit you put in to turn the glass, thus keeping an equal heat and preventing them breaking. The glasses with wide openings are the best. Having filled the glass to the neck, put blotting-paper soaked with cognac on the fruit, then put a string, several inches long, across the paper, with ends hanging out, and pour hot tallow on, filling to the brim. This hermetical sealing prevents the fruit coming in contact with the air and preserves it. To open, put the neck of glass in hot water for a minute or two, and pull open by the string.—Professor J. Bahrenspeyer, *Jaffa, February 20th*, 1890.

CASTS AND DRONE COMB.

[102.] I do not agree with No. 73, p. 102, as regards bees beginning to build drone comb. I had a cast last year put into a good large straw hive, and lifted them up the first night to see if they were all right. Yes, they were doing well. The third night I looked at them, they had all shifted to the other side of the hive. They had built a drone comb about 6 × 4 inches, only held by a little bit at the top. This broke down. When I lifted the hive up the second time there were two more pieces of drone comb, not so large. I have an uncle who keeps about thirty to forty stocks, but never cares to keep casts; he says with these that there is too much drone comb in the hive, he cannot get any honey; it takes all the workers' time (what few there are) to get enough to keep the drones.—H. Seamark, *Willingham, Cambs.*

Selected Queries.

Additional Replies since last week.

[1.] *The owner of a single hive has a natural swarm come off: how should he proceed (honey being his object) supposing the swarm safely taken in a straw skep?*

It is difficult to lay down any hard-and-fast rules—season and circumstances guide the practical apiarian in his work; but in a general way I should open the hive, cut out queen-cells, and return the swarm, if headed with a good queen; but if the queen was two years old, I should cut out all queen-cells except one near the centre of hive, depose the queen, and return the bees after placing an empty comb, or sheet of foundation, in centre of hive, and another crate of sections under those on at time of swarming. But if moderate increase and honey combined

was wished, I should hive swarm on six frames of foundation, and three dummies, one in front and two at back; place on excluder, and transfer all supers to new swarm, placed on the same spot on which old hive has stood, and remove the old hive some distance away; or, if a large quantity of capped brood was in old hive, I should take two or three combs and place with new swarm instead of the dummies, but in centre of hive, of course. Thus all the honey-gatherers will be with new swarm, and the brood will hatch out to replace those that die off.—W. Woodley.

Move the parent stock to a fresh stand, and place the swarm in the position previously occupied by the parent stock, and if at the time of swarming the parent stock was working in a super, sectional or otherwise, remove the super and place it upon the swarm. If no super was being worked, supply the swarm with a new one, sectional or otherwise, fitted with full sheets of foundation, and give more room as required. In either case a queen-excluder should be placed below the super, between it and hive.—H. Wood, *Lichfield*.

Queries and Replies.

Query.—Does feeding cause bees to build drone comb? I, as a novice, should like to know the experience of some of our veteran bee-masters on the above question. Last autumn I drove three stocks (1889 queens) from skeps and put the bees on starters in bar-frame hives; then fed them up quick. When straightening up for winter I was surprised to find fully one half was drone comb; also a man here who has the reputation of syruping his bees through summer has more drones per hive than any one else, and I am told that syrup does it. Will some one kindly tell us the reason?—J. W. D.

Reply.—You do not say if you gave your driven bees foundation. If you left them *to build* their comb, and at the *same time* fed them very rapidly, we should be surprised if you did not get a good proportion of drone comb. Remedy: either give built-out combs, or feed discreetly until the combs are built.

Query.—Wishing to get extracted honey, shall be glad if you will answer the following questions:—1. What depth should the top hive be? 2. Should the frames be wider than those in the stock hive? If so, what width, and how far apart? 3. Is there great risk of queen going up if excluder zinc is not used between hives? If it must be used, is it necessary to have bee-space both above and below the zinc? 4. What foundation should be used, wired, or just ordinary thick in wired frames? An answer as early as convenient will oblige.—W. B. D.

Reply.—1. You can use either the ordinary sized body-boxes for storifying, and pile them one on top of the other, or use shallow frame-boxes. These are 6 in. deep, and the frames are 6½ in. deep. These shallow boxes are coming very much into use, although many still advocate using only one sized hive in the apiary. 2. The frames are the same width as those in stock-boxes, but are spaced further apart, so that the combs are slightly thicker. From 1⅜ to 1⅝ in. from centre to centre is the usual distance. 3. There is a risk of queen going up, but it is reduced to a minimum if the upper box is put on just at the right time, and when honey is coming in freely. We prefer to restrict the queen to the two lower boxes, and work with this end in view. Twenty frames give the queen plenty of breeding-space, and she will not need to go higher. Some use excluder zinc, but we have never found any necessity for this. However, if you do use it, there should be a bee-space top and bottom. 4. If standard frames are used, we prefer wire foundation, as this stands more rough usage in extraction. If shallow frames are used, ordinary thick foundation can be used.

Query.—My bees are on four frames now, and are healthy and active. Shall I spread the brood this spring? It usually takes me *all the summer* to bring my bees to proper strength. Can you tell me how to prevent this? Last year I only got 7 lbs. surplus. When is the earliest time to re-queen? What is the entry fee to the Plymouth Show? I intend to give a further subscription to the B.B.K.A. in answer to your appeal. Does 5*s.* entitle a member to all privileges?—Middlesex.

Reply.—In your neighbourhood you cannot get much honey surplus. The bricks and mortar have spoilt that. You may spread your brood with good effect if you commence about six weeks before the principal honey-flow, and do it judiciously. If improperly done it will do more harm than good. It is much too cold yet to attempt a close examination to see if the queen is alive. Notice on warm days whether the bees are carrying in pollen, also whether any young grey bees are sunning themselves on the flight-board, also whether the bees run about the face of the hive in a restless manner, examining every corner and crevice repeatedly. Watch 'Useful Hints' as to suitable time for re-queening. A schedule will be sent you. Yes; any subscription of not less than 5*s.* entitles a member of the B.B.K.A. to all and every privilege.

Query.—Would it do to lift the frames of comb with adhering bees out of an old hive into my new one? They are both standard size. When would be the best time to do this? How should bees be treated, both before and after shifting frames? I am a beginner.—A. J. Preston.

Reply.—Yes, lift the frames one at a time from the old hive to the new one; do it with as little disturbance to the bees as possible, and put the frames in exactly the same position as regards each other as they occupied in the old hive. This is known as transferring. Best done on a warm, genial day in April, say about second week, but you must be governed by the

weather. After transferring give the bees gentle but *regular* feeding with spring syrup (see *Guide-book*). Read our 'Useful Hints' as they appear in the *Journal*, and consult us as fresh questions arise.

QUERY.—Is a queen-excluder zinc required between brood-nest and shallow frames, worked for extracting? I intend to place the shallow frames exactly over the frames in brood-nest. I have a stock of pure Carniolans from which I want to raise a pure queen in a nucleus hive. I intend using a drone-trap on my black stock, and so lessen the chance of the new queen being mated with any other than one of the drones from the same hive. There are other blacks in the neighbourhood.—J. H. NEVE.

REPLY.—We should prefer to use excluder zinc. It makes assurance doubly sure. Some place the shallow frames at right angles to those in the brood-nest. We would buy another Carniolan queen in preference to raising both drones and queen from the same stock. It is in opposition to the tenets of the craft and the rules of nature. Bear in mind that drone-raising followed by queen-raising on the part of the same stock means a considerable diminution in the quantity of workers raised, which, as you will at once see, militates against the production of surplus honey. Where a bee-keeper has not more than two stocks, or perhaps three, it is very questionable whether queen-raising at home is a financial success, more especially if the owner can dispose of his surplus honey. By working them in rotation, and giving one new queen each year to his apiary at a cost of, say, 7*s.* 6*d.*, much trouble and annoyance to the owner is avoided, while the bees are encouraged to do their best in the way of storing honey. Moreover, the exact variety wanted can be purchased. In most apiaries it is quite impossible to forecast what the progeny will be. Then it is by no means certain that the first or even the second attempt will secure a duly fertilised queen. Successful queen-rearing is a separate business.

THE DUTY OF THE HOUR.—Every observing bee-keeper has noticed the effect upon our calling of unprofitable seasons. Many will become discouraged, others will be indifferent and careless, and the result will be a great loss in bees, combs, and fixtures. It is a noticeable fact that such a poor season is almost sure to be followed by a good one. This being the case, every prudent and far-sighted bee-keeper will see the desirability of keeping his stock in the best possible shape, and of holding himself in readiness to make the most of a better season when it comes. We should remember that this is but a temporary embarrassment. We should avail ourselves of every advantage to winter our bees successfully. Preserve all surplus combs and sections, keeping them in the best possible condition for use next year. Bad seasons are full of experiences that cannot be acquired in any other way.—*American Agriculturist.*

Echoes from the Hives.

Leicester Villa, Carshalton, March 7th.—To-day being fine, and bees flying, I examined one of my hives, and found brood upon two frames, plenty of stores, but very little pollen. The queen appeared to be in fine condition. This stock was a swarm hived in June last. I found upon one comb *remains* of two queen-cells. Will you kindly give me your opinion whether the present queen is the one that headed the swarm, or do the queen-cells prove that the bees superseded her?—E. ADAMS.—[Quite probable that it is the same queen. The bases of queen-cells prove nothing.—ED.]

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

CRUST.—Does the letter on page 128 clear your difficulty? You will see that the best idea is undoubtedly to give the stream of bees a forward run. If you consider it similar to a rush from a sallyport in a battle you will see that the straight onward course offers practically no impediment, but any turning, more especially a right angle, *must* cause a block; the nearer it approaches a right angle, the greater the risk of an absolute stoppage. Shall be glad to pass an opinion on your crate. Address it *B.B.J.* Office, please. The gentleman you name is not a bee-keeper. Kindly give your *nom de plume* with future queries. We have a difficulty in recalling each one.

J. PERRY.—*Sugar.*—The sample of sugar you enclosed is not, in our opinion, Porto Rico sugar, and we do not consider it suitable for dry sugar feeding. It seems to us to be a manufactured moist sugar, and does not contain so much of saccharine matter as the genuine raw sugars do.

A WORKER.—*Preserving Specimens.*—Yes; we will shortly give instructions.

O.—*Liquefying Honey.*—It can be done with very great care, but if at all overheated the flavour would be spoilt. Whether it took a prize would depend upon the quality. Try a small quantity, and see how you succeed. Granulated honey, whether of this or any other year, can be shown.

It is said that there is only a very small part of a drop of poison in the sting of a bee. No matter how small the part, however, the *departure* of the person stung is sure. The bee 'gets there' all-e-samee—but it parts with its sting.—*American Bee Journal.*

THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

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Editorial, Notices, &c.

STATISTICS WANTED.

Our contemporary, the *Liverpool Echo*, has recently published the following exceedingly interesting Irish statistics for the year 1889 :—

'From some reason or other, which we will not now venture to explain, there was during the past year a considerable falling off in the acreage of some of the cereal and other crops in Ireland compared with the extent of land under cereal cultivation in that country in 1888. Whilst, however, there was less acreage, the crops themselves showed a considerable increase. Thus, whilst the acreage of wheat was less by 9268 acres, the crop of wheat showed an increase of 68,224 cwts. ; oats, with a decrease of acreage amounting to 41,996, were 2007 cwts. heavier than in 1888 ; potatoes decreased in extent by 17,332 acres, but increased in quantity grown to the extent of 324,415 tons ; while mangel-wurzel, with a decreased acreage of 1728, was 31,584 tons heavier than it was in the previous autumn. The produce for the year compared with the average produce of the ten years 1879–88 shows in cereal crops a decrease in wheat of 81,726 cwts , and in oats of 300,724 cwts. ; but there has, on the other hand, been an increase in barley of 371,287 cwts., in bere of 800 cwts., and in rye of 102,281 cwts. In other crops in 1889, as compared with the average, there was an increase of 52,080 tons in potatoes, of 411,522 tons in turnips, of 115,236 tons in mangel-wurzel, and of 791,647 tons in hay. Bee-keeping is carried on to a large extent in Ireland, as it is in many parts of Scotland, where the heather is easily accessible for the storage of the honey after the hives have swarmed; but in regard to this interesting industry, as it may appropriately be termed, the returns show a considerable falling off both in respect to the number of swarms at work and the quantity of honey produced. During 1888 there were 26,447 swarms at work in the neighbouring isle, of which 8421 were located in the province of Leinster, 6677 in Munster, 9129 in Ulster, and 2223 in Connaught. The quantity of honey produced was 382,092 lbs., of which 84,887 lbs were produced in Leinster, 99,318 lbs. in Munster, 99,757 lbs. in Ulster, and 44,130 lbs. in Connaught. It is satisfactory to learn that the prices paid to the farmer for his crops were fairly high and remunerative, whilst the cottagers by whom the bees are chiefly kept got good returns also for the honey they were able to put on the market in the course of the year. The humble bee, in fact, is in some parts of Ireland proving a much better rent-payer for the cotter and small farmer of the Emerald Isle than the proverbial pig used to be ; and it may be that the example which the toiling and busy insect sets to the human race generally is one which is productive of better results among mankind as a whole, whether in England, Ireland, or Scotland, than that which is to be derived from a contemplation of the indolent habits of the lazy and ungraceful porker.'

So far as regards general crops we are pleased to see that, in spite of decreased acreage, the aggregate of produce harvested was greater. Naturally, the most interesting portion to us is that referring to bee-keeping. It is highly pleasing to us to find the craft being acknowledged, by those not engaged in the pursuit, as a source of considerable profit and income to the community at large. As might be naturally expected, having in remembrance the disastrous season of 1888, we are told of colonies being fewer and surplus being less. The province of Connaught comes first, with an average of about 20 lbs. ; Munster next, with 15 lbs. ; while Leinster and Ulster only secured 10 lbs. per colony. We note with pleasure that good returns for the honey were secured, and that the rent-paying power of the bee has become an acknowledged fact.

Our main object in drawing attention to this article is to give expression to the importance of establishing similar statistical returns of the bee-keeping industry in this country. When filling up our agricultural statistical return we have added a note as to the strength of our apiary, and expressed the opinion that the addition of such information would be of great economical importance. We also persuaded other bee-

keepers to do the same. May we suggest that for the future any bee-keeper who does not in the ordinary course receive one of these forms should apply to the nearest surveyor of taxes for one, and that all bee-keepers should insert on such forms full particulars of the number of stocks they own, and the produce from them during the previous year. It is our intention, if possible, to persuade the Minister of Agriculture to devote a portion of the form to bee-keeping statistics, and it occurs to us that if his department finds returns coming in from all quarters, with this information given in excess of that asked for, it will considerably emphasize our request. Tradition and precedent have great weight with most Government departments, and for that reason we anticipated considerable difficulty in persuading the Board of Trade to consider any such application, but now that we have a new department created, there appears to us to be a much better chance of succeeding.

In other countries it is easy to ascertain the position bee-keeping holds amongst the industries. In Germany, Switzerland, and some other places, regular returns are made every year; then why should we be behind these? Bee-keeping is now becoming an established industry, but it is only by united action that we can make our influence felt.

USEFUL HINTS.

Weather.—The snow we had anticipated has come and gone. Not so, however, has wintry cold departed. One or two days of higher temperature have given opportunity of further cleansing flights, but the chilling wind felt as soon as clouds hid the sun drove the bees back speedily into the hives. Hence they have been able to do little or nothing in the way of pollen-gathering from the crocuses. Water was taken freely in some cases, indicating probably that breeding was in progress. This should be kept in mind in view of the fine days we may believe to be at hand. As previously recommended, supplies of Nature's beverage should be available in suitable dishes, if no natural source is near. A little salt thrown in will be an addition agreeable to the bees, who, like creatures of higher rank in being, seem to need saline ingredients in their economy.

Robbing.—With all due admiration for the reasoning and other faculties, and for what seem certain moral qualities in bees, we, unfortunately, cannot ignore their defect in honesty. Nothing is more trying in an apiary (*foul brood* excepted) than the development of the plundering instinct in one or two stocks. When set up it is difficult to say where it will stop, unless prompt and persevering efforts be made to quell it. It is, therefore, most important, directly warm days come and the bees are flying freely, to watch lest some weak stock be discovered by a neighbouring one stronger in numbers, and greedy for easily gained supplies of honey. Should an attack be in progress, the entrance must be contracted to very narrow dimensions, to give the guardians of the gate opportunity to repel the assailants. Then a cloth soaked in carbolic acid and water (1½ oz. of the acid, Calvert's No. 5, to 1 quart of water) should be made to hang in front of the hive, so as to allow the rightful tenants to find their way under it to the entrance. The strangers bent on robbing will be partly disgusted, partly baffled, by the cloth and its odour; and, unless their appetite has been aroused beyond control, will probably be scared from further endeavours to get into the hive.

Beginners may, by an apparent commotion in a strong stock on a bright, warm day, be misled into thinking that robbing is in progress. Unless fighting is seen in the seeming excitement about the entrance no fear as to plundering need be entertained. As 'prevention is better than cure,' certain precautions should be observed, so as not to give any suggestion as to 'free meals' to the bees. By this we mean that directly spring feeding begins, care must be taken that not a drop of syrup be spilt where any bees can find access to it. Then the food-bottle should be covered, to prevent the scent of the syrup attracting the notice of spoilers ready to swoop down on material riches.

Examination of Stocks.—As soon as a really warm day occurs, gentle and cautious examination of stocks should be undertaken. There are several reasons for this. Firstly, owing to deaths, and to diminution of stores by the winter's consumption, it will, in most cases, be advisable to take away some empty frames, so as to contract the brood-nest. Secondly, it is very desirable to ascertain that each colony possesses a queen. If in any case the mother-bee is gone, the stock should be united with another. It is very risky to attempt the introduction of a new queen at this time of year. Thirdly, the amount of food remaining, and the quantity of brood coming on, are matters of moment. Fourthly, weather permitting, a rapid transfer of the frames into clean, dry, and well-warmed hives will often prove a comfort and a stimulus to the bees, especially if their winter quarters have become damp through atmospheric influences, or from condensation of moisture in the hive. Lastly, such a transfer will give opportunity for the stoppage of mischief if mice or wax-moth have begun their depredations. When hives have been thus emptied, let the floor-boards be well washed with warm water and carbolic soap. The walls and cover may, with advantage, be similarly treated. Effluvia from excretions and absorbed vapour will in this way be got rid of, and harm prevented to future tenants of the hives.

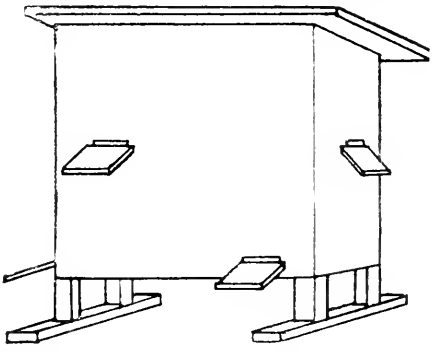
Spring Stimulation.—Again we say, if the honey stores are not exhausted, 'Let well alone' yet awhile. Wait, at all events, until fine, warm weather gives opportunity for free flying. Then, towards the end of the month, if there is plenty of honey in the hive, some two square inches of sealed cells may be uncapped on two or three frames, at intervals of a few days. This will stimulate the queen to lay eggs, from the supposition that outside stores from flowers are fully available. Should food be running short in the hive, syrup may be given under the previously mentioned weather conditions: but two cautions must be heeded. First, do not let the supply be greater than that afforded by two holes in the lid of the feeding-bottle. Secondly, see that the supply, when once begun, is continuous; for if breeding be thus encouraged, and then the necessary quantity of food be not procurable, much loss of brood and destruction of eggs will take place. The ingredients for the syrup are, 10 lbs. of white lump sugar, boiled for a few minutes with 7 pints of water, to which *one* ounce of vinegar, another of salicylic acid solution, and another of salt, have been added.

Preparations.—Before the makers of bee-apparatus are inundated with orders, it will be well to obtain from them new hives, section crates, sections, foundation comb, and such other appliances as may be more or less suddenly required later on. We can well imagine that it would pay makers of appliances to give a small discount to purchasers who send their orders during the slacker period of the year. Certainly those bee-keepers who 'take Time by the forelock' save themselves much trouble and annoyance by obviating delay in getting what they want—a delay for which it is not fair to blame manufacturers, who are overdone for a few weeks with the requirements of people who have put off sending in their orders till the last available moment.

HOUSE APIARIES.

The management of house apiaries, or bee-houses, throughout the United Kingdom, has only been attempted on a limited scale. The cause of this may be attributed to the fact that the majority of the 'craft' who are our most successful bee-keepers never intended making bee-keeping a business, or, at least, not enough to warrant the necessity of erecting a bee-house for all the stocks they intended keeping. In America, where many earn a living at the 'pursuit,' and large apiaries are more common than here, bee-houses are used somewhat extensively, and are said to give satisfaction. For all practical purposes, hives on separate stands may be managed equally as well, and in some cases better, than in bee-houses: but there are times when these must be resorted to, and in the hands of an expert, who knows what kind of structure is wanted, there is little fear of not succeeding.

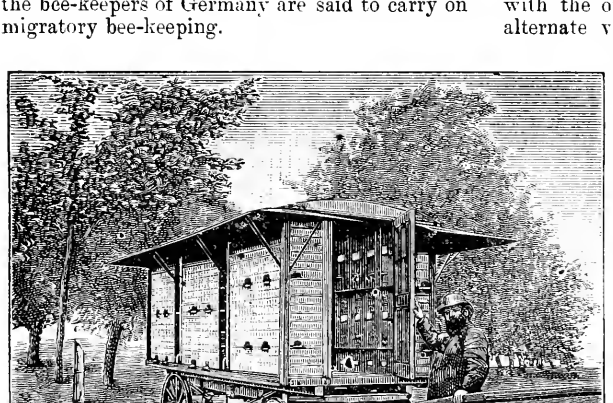
For the establishing of out-apiaries, bee-houses are specially to be recommended. Everything can be kept secure from molestation, and any extra appliances stored ready at hand. Even in exposed or badly fenced situations, the bee-keeper must sometimes of necessity keep his stocks in a house. The objections urged against their use are, chiefly, want of room for manipulations, want of room for supering, want of ventilation, entrances too near each other (thus encouraging young bees to enter the wrong hive, as well as young queens when out to get mated), and risk of disturbing all the hives during operations. In most cases all these objections may be remedied. My experience of bee-houses has been fairly extensive, having in use several shapes and sizes. My first attempt was, however, unsatisfactory. I had one made to hold twelve hives, almost identical to the one used by the late Rev. G. Raynor, as illustrated at page 44 of *Journal*. In practice I found that the entrances were too near each other, and a want of room for supering purposes—consequently I discarded it after trial. I have several bee-houses in use, made like accompanying sketch, and in which stocks have wintered



better than in single hives. Each house, it will be seen, holds four hives. Entrances are placed as far apart as possible, and the hives can be worked on either the storifying or combination principle. The roof is hinged to lift up, the back opens outwards in two doors, thus giving plenty of 'elbow-room.' The inside is simply two long *trough*-like frame hives, and each stock is kept apart by division-boards. To those who do not wish to go to greater expense, I would recommend these houses, which, for the price of materials, do not exceed the cost of a weather-proof single-frame hive. Size of each is 4 ft. long by 4 ft. high by 20 in. wide. Materials required to make one are: four corner-posts, 2×2, cross-beams 4×2, bottom and centre shelves — strictly speaking, the floor-boards —of $\frac{3}{8}$-in. jointed flooring: four boards, $9 \times \frac{1}{2}$ inch and 4 ft. long for hive sides. All the other wood of $\frac{5}{8}$-in. jointed and beaded lining, with roof covered with canvas, and painted, to make all secure.

For some years I have had in use, at an out-apiary two miles from home, another house

which holds twenty-two hives, and which would, no doubt, meet the requirements of your correspondent, 'S. W. R.,' at page 71 of *B.B.J.* The size is 9 ft. long by 6 ft. wide, and 7 ft. high. The hives are arranged in two rows, eight on each side, and six on the front or end, the door being on the other end. All manipulations can be carried on from inside of building. There is no floor in it; the bottom row of hives rests on the ground, the top row rests on two stout rails. I work this house on the non-swarming principle, and frequently have had stocks in it 3 ft. 6 in. in height. My experience of this house is that all that is necessary to make it complete is to have it on *wheels*, so that it could be moved from one locality to another. It would then appear somewhat similar to the illustration, which shows how the bee-keepers of Germany are said to carry on migratory bee-keeping.



The advantage of having bee-houses on wheels requires only to be known to be more adopted. How very often it happens that, in one district, bees would have better foraging-ground, that it would pay to shift them to, were it not for the trouble and hard work involved in packing and unpacking hives. The greatest objection to bee-houses on wheels is the cost, but there are chances where one might secure a second-hand spring lorry, or the wheels and springs of a wagonette or carriage cheaply, which, with the cost of putting sides and top to make it into a suitable bee-house, would not exceed more than a few pounds.—W. McNally.

THE BEE AND THE WILLOW.

By G. W. Bulman, M.A.

The willow-haunting propensities of bees are conspicuously displayed in the spring; they are probably familiar to many. It is Grant Allen who observes that 'you hardly ever see a willow catkin in full bloom without a bevy of its attendant fertilising insects.'

It is to the theory implied in this word 'fertilising' that I wish to call attention. I cannot think that the willow depends chiefly on bees, or even that it is at all frequently fertilised by the same. It is rather to be believed that it is wind-fertilised, like the majority of dicœcious plants.

I cannot bring forward conclusive evidence; but what I have, points emphatically in the above direction. While I set forth my small quantum of evidence—the fruits of a few moments' observation on a spring afternoon—let me call the attention of others to the matter as a question requiring solution.

In the first place, given a species bearing its stamens and pistils on separate plants, how is insect fertilisation to be accomplished? Obviously by the insects passing frequently from a plant with the one sort of flowers to a plant with the other. If we imagine them making alternate visits first to a male and then to a female flower in regular order, then each of the latter has a fair chance of fertilisation.

But if a bee visits, say, fifty male flowers, and then goes and pays the same number of visits to female flowers, only a few of the first visited of the latter will probably be fertilised. If a bee gets its fill on one sort of flower, it will accomplish no fertilisation at all.

We should be inclined to infer, *à priori*, from our general knowledge of the habits of bees, that one of these latter would happen.

Let us, however, see what the bees are really doing. Here by the river-side are the willows in full flower. Very large numbers of bees are buzzing about the male catkins of those large bushes; on the neighbouring ones with female catkins are considerable numbers, but not nearly so many as on the former.

In the first case they are gathering pollen; their thighs are laden with the golden grains: in the latter honey alone is presumably their object.

I do not know whether bees usually carry on these two operations at the same time or not; but in this particular case, since the bees on the female blossoms have no load of pollen, it may be presumed that they have not recently been on the male catkins, and are not therefore fertilising the former. I do not wish it to be inferred from this single observation of the bees' habits that bees with loads of pollen do not often fly to female catkins; it is rather brought forward as a point for further investigation.

Now both of the above facts—the difference in the number of bees on stameniferous and pistiliferous plants, and the absence of pollen loads on those visiting the latter—point to the conclusion that the willow is not as a rule fertilised by bees. And when we reflect that every passing breeze may carry clouds of the fertilising dust to the stigmas, the inference seems

obvious that the willow is frequently wind-fertilised, and that it could get along very well without the bee. Yet we find Mr. Grant Allen asserting that 'the willows depend entirely for the due setting of their seeds upon winged allies.'* And if the willow is really wind-fertilised, the existence in its flowers of honey is—on the bee-selection theory—anomalous. Also, according to certain upholders of the same theory, insect visits are a disadvantage:—

'The very same insect interference which proves so beneficial to insect-fertilised plants is the deadliest danger of their wind-fertilised allies, and is guarded against by a profusion of minute devices.†

As is well known by students of Virgil, the bees' frequent visits to the willow were noted some 1900 years ago; to-day, in spite of the insect's selection, its flowers are neither blue nor complex. What can we think of selective action applied perseveringly for some 2000 years without producing any effect? Upholders of natural selection consider—somewhat unreasonably, surely—such questions unfair; they are wont to answer that there has not been time; that your 2000 years is but a drop in the bucket required.

Such answers are most unsatisfactory. The geologist who tells us that rock-masses many miles in thickness have been piled up by the long-continued action of forces at present in operation is called upon to show the same producing like results at the present time. And he does so. He shows us how a continent is being lowered so many inches in a century, and at what rate a deposit is being formed; he points out evidence of the results produced by the action of his forces within historic times.

When we ask for evidence of the result of the bees' selection at the present time, or within 2000 years, the answer is, 'More time is required.' Is this fair? Has there not been time? If the changes are so minute, then an infinite length of time is required to produce any considerable change; it requires an infinite series of infinitesimals to make a finite quantity.

Another answer, perhaps, is that the variations have not been in the right direction. Such an assertion is, of course, unanswerable, and can be used on many occasions. Yet one upholder of the bee-selection theory requires nothing more for the development of blue than that the flowers should acquire a blue tinge, 'as all the upper parts of highly developed plants are apt to do.' And it may be suggested as curious that bees should so perseveringly visit flowers not varying in the right direction, while others have, according to the theory, varied abundantly in the way of blueness and complexity.

The willow has likewise an important bearing on Mr. Henslow's theory of the development of flowers by the direct stimulus of insect action.‡ Mr. Henslow considers the willow an anemophilous plant; and he believes such to arise through the neglect of insects:—

'With regard to the origin of anemophilous flowers, there is every reason to believe them to be due to the neglect or absence of insects; that as these have brought about brilliant colours or other kinds of conspicuousness, so their absence has allowed flowers to degenerate and become inconspicuous, the result being either self-fertilisation or anemophily.*

And yet it would be difficult, perhaps, to name a plant much more frequented by bees than the willow.

'Behold! yon bordering fence of sallow trees
Is fraught with flowers, the flowers fraught with bees.'

—*Science Gossip.*

* *Knowledge*, Feb. 23rd, 1883.

† Grant Allen. *Knowledge*, June 8, 1883.

‡ See *Floral Structures*. International Scientific Series, vol. lxiv.

Associations.

IRISH BEE-KEEPERS' ASSOCIATION.

The Committee met on the 4th inst. Present—Rev. R. Seymour, in the chair; Miss Curry, Rev. Canon Sadleir, Mr. Read, and Mr. Chenevix, the hon. secretary. The annual general meeting was fixed for Thursday, 10th April, at 1 p.m., and the next Committee meeting for 12.30 p.m. on the same day, instead of, as usual, on the first Tuesday in the month. It was resolved that lectures should be given in the bee-tent at Castlebar during the summer.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The annual meeting was held March 1st, 1890, at Leicester. Mr. L. Fosbrooke (Ravenstone Hall) presided. The annual show was held in the show-ground of the Leicestershire Agricultural Society, at Melton Mowbray, on July 31st and August 1st, Mr. J. M. Hooker, judge. Nearly a ton of honey was placed on the tables. There was also an excellent display of hives and bee appliances. The silver medal was awarded to Mr. J. W. Bickley, of Melton Mowbray; the bronze medal to Mrs. Copley; and the certificate to Mrs. Rippin, of Waltham. The hive and bees were drawn for as usual, and fell to the lot of Mr. Beazley. The balance-sheet showed receipts amounting to 36*l.* 1*s.* 10*d.*, leaving a deficiency of 9*l.* 12*s.* 6½*d.* It was a question whether the Association could continue to exist unless something was done to increase the funds, and, on the other hand, to decrease the expenses. Mr. Ryley suggested that the Agricultural Society should undertake the cost of the bee-show in connexion with their annual show, and take the whole of the proceeds. In the course of further discussion, several speakers appealed to the various public bodies interested to support the Association to the utmost of their financial resources. On the question of expenses, attention was called to the fact that the Association, being an affiliated branch of

* *Floral Structures*, p. 270.

the British Bee-keepers' Association, was entitled to the gratuitous services of a judge.

Mr. W. P. Meadows (Syston) gave an interesting paper on 'Honey as Food,' and also explained the modern method of doubling and storifying, and of working generally.

LANCASHIRE AND CHESHIRE BEE-KEEPERS' ASSOCIATION.

The eighth annual meeting of the Lancashire and Cheshire Bee-keepers' Association was held at the 'Bear's Paw' Restaurant, Liverpool, on Tuesday, the 25th February.

In the absence of the President (Lord Lionel Cecil), the Rev. J. F. Buckler, Chairman of the Executive Committee, presided, and at the outset expressed his regret at the unavoidable absence of the Hon. Secretary, Mr. Wm. Lees McClure, who had been called away to London on important business. The present list of members numbers 304; 129 new members having joined the Association and 43 resigned during the year, thus leaving a net increase of 86 members for the year.

The division of the two counties into districts, with a local hon. secretary for each, has been of good service, and the plan is being still further extended. It is found that much of the success of the Association has also been due to the efforts of energetic local hon. secretaries in many districts.

Most of the executive officers were re-elected, and the newly appointed Assistant Secretary is now daily in attendance at the office of the Association, No. 2 South John Street, Liverpool, where the library has been placed, and is available for members' use. It was a source of general congratulation that the Association is fulfilling the objects for which it was formed, and all the members present were sanguine that much good will be done to the cause of bee-keeping in the year now entered upon. Before closing the meeting, the Chairman introduced Mr. T. W. Cowan, and expressed the pleasure all felt at having the Chairman of the B.B.K.A. with them on this occasion. Mr. Cowan suitably replied, assuring the meeting that he had much pleasure in coming down to meet them on that special occasion. He also said a few words on the progress of bee-keeping in the country, and the dense ignorance of fruit-growers and farmers with regard to the necessity of bees as fertilisers. He thought the members of the Association could do great service by teaching people the value of bees as fertilisers, and it was his belief that in this respect they were of far greater general importance than for the sake of the honey and wax they produced.

After the business proceedings had closed, a complimentary dinner was given by the members to Mr. W. Broughton Carr, 'for the purpose of expressing their appreciation of his labours in the past in the cause of modern bee-keeping,' and to wish him every success in the amalgamation of the *Record* with the *Adviser* and *British Bee Journal*, and his being associated with Mr. Cowan in the editorship of both papers.

GOOLE AND DISTRICT BEE-KEEPERS' ASSOCIATION.

The adjourned annual meeting was held at Goole on the 1st inst., Mr. Chester presiding. This Association was formed on April 1st, 1889, ten bee-keepers being present. The members have increased to twenty-nine.

On August 17th the first show of honey ever held in Goole took place in Mr. Chester's apiary (kindly placed at the disposal of the Association), the quality of the various exhibits being very creditable. The competition between members in manipulating a frame hive most skilfully proved an interesting item. Mr. R. A. H. Grimshaw officiated as judge and lecturer.

During the coming season it is proposed to hold a show on a larger scale. Copies of *Modern Bee-keeping* have been purchased of the B.B.K.A., and sold to members at reduced price. The extractor (kindly lent by Mr. Rockett) has been freely used, and members find it a great improvement upon the old plan of allowing the honey to drip.

The Treasurer's report shows a balance on the right side of 2*l.* 6*s.* 0½*d.*

ESSEX BEE-KEEPERS' ASSOCIATION.

The annual meeting was held in the Vestry Hall, Chelmsford, on January 17th, the Mayor presiding. The report stated that the year had been one of increased usefulness. The production of honey had been encouraged by holding a two days' county show at Colchester, an autumn county show, and a summer show at Chelmsford; and at local horticultural and cottage garden shows in ten places in the county, by competitions for the Association's certificate and prize for the best single section produced in each district. The Society's hon. lecturer, Mr. Edmund Durrant, had given lectures, illustrated by dissolving views, on bees and bee-keeping, at seven places during the year. An exhibition of modern bee-keeping appliances was held at Romford in July. The *Bee-keepers' Adviser* had been supplied during the year to a number of cottage members. Commencing 1890, it was intended to supply a copy of the *Record* to all cottage members, so that they would really receive from the Society more than they gave. The revenue working for 1889 showed an expenditure of 145*l.* 1*s.* The receipts amounted to 150*l.* 6*s.*, leaving 5*l.* 5*s.* to be added to the 33*l.* which the balance-sheet last published showed was in hand. The report of the expert (Mr. Walter Debnam) was then read. Mr. Meggy was chosen to represent the Association at the quarterly meetings of the British Bee-keepers' Association. Lady Brooke promised 5*l.* for cottagers' prizes, the Mayor of Chelmsford a prize of 30*s.*, and Mr. W. J. Beadel, M.P., a prize of 1*l.* at the County Show to be held at Chelmsford in June, in connexion with the Essex Agricultural Show, at which the Prince of Wales has promised to be present.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," c/o Messrs. *Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (see 1st page of Advertisements.)

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

IN THE HUT.

'While rocking winds are piping loud.'—MILTON.

[103.] I wonder who it was who dubbed this 'long, majestic March,' 'the merry month of spring?' At any rate, he was no bee-keeper. Here we have people peeping under quilts (of hives) one day, and at night comes a snap of frost, breaking down the crocus blooms and leaving the earth as hard as iron, whilst, next day, the wind veers and drenches us with soft, warm rain. To say 'In the Hut' is a delusion. 'Of the Hut' would be nearer the mark, for the water finds its way in, and extractors (of tin) have to be judiciously adapted to receive it, so that none be wasted; the stove is red-rusted, and a general air of dampness pervades the spot.

'Blow, winds, and crack your cheeks! rage! blow!' for surely the wintry wind that drinks up the moisture is God-sent for our bees; breeding will be retarded, and bees will not be tempted out, by vain, delusive gleams of sunshine, in search of pollen, only to find that chilly reception amongst the flowers which means to them the shivering wing-fluttering of death. I may be a false prophet, and I hope I am, but I think the winter has to come *yet*. Should the weather, in spite of all, turn out into real spring, I shall repeat my custom of feeding crocus blooms with pea-meal, and fill an empty frame or two with the same on one side by laying it down, and gently rub the pea-flour in till the cells are filled. These put into a case resting on its side, the back to the north-west (the prevailing wind), will be well worked when the weather is warmer. Then when hives are opened the frames will be put in at the back (parallel frames) to be finished up.

I have seen so many bee-keepers who successfully winter bees in hives with narrow entrances that I am modifying my opinion as to hives being left in the coldest weather with doors full width. This may be called a retrograde step; I cannot help it: I will, like the crab, progress sideways. I intend also, this year, to use honey-boards of excluder zinc, for I think the slight hindrance, if it be such, *to the bees*, is not as great an annoyance as a few spoilt sections are *to me*; anyway, I am going in for pleasing myself a bit more, and the bees a bit less.

In this district granulated extracted honey is most sought after, sections next, extracted heather next; and, last of all (but far the best), three-pound slabs of fine heather-honey virgin comb the public do not catch on to. I have had it said that this particular kind of honey makes people sick. I suppose they gorge on it; they would not dare to eat as much treacle. So that, all considered, extracted will be the 'consummation devoutly to be wished,' and 'The X-Tractor' has to do the heavy work in our garden.

To all those who have to go from home at swarming-time, or even these (and there are a few) who are not able to *live* in the bee-garden the best part of the day, I strongly commend the exceedingly simple swarming alley (this is not *Alley's* swarmer) as figured on page 128. A piece of board about the width of ordinary hive doorway has a long piece of excluder zinc, bent at edges, fastened on it so as to form a roadway for the queen (and bees) when placed, at night, one end to the door of a likely swarmer, the other end opposite the door of an empty hive. There are so many apertures in this that ordinary working may not be interfered with much, and, in fact, the thing may urge them to get on with their swarming and have done with it. We shall see how it works, for many things are such entire successes until they are tried!

If I write more you will say I am trying to extract 'sunbeams out of cucumbers.'—X-TRACTOR.

DO QUEENS GET THROUGH EXCLUDER ZINC?

[104.] I am a great advocate for the use of excluder zinc, and in tiering up for extracting it *must* be used; and I may here remark that, during some ten or twelve years, I have only once had a queen get through it into supers; but from experiments made last year, I have an idea that queens can get through it if they like—for instance, if they are in a state of excitement, as when trying to follow a swarm.

As I mentioned in a previous letter to the *B.B.J.*, I was much bothered last year with my bees swarming, and as I found it difficult, in the huge swarms I had, to find the queen, I hit upon the idea of hiving the swarm into a box the bottom of which was made of excluder zinc. The process was as follows:—Shake the bees into box, shut down lid quickly, turn box upside down (so that zinc is uppermost), take a cork out of side of box (where I had made a small hole), insert nozzle of smoker, give two or three puffs and out comes the swarm; take box into bee-house, open lid, and (in my case) find nothing but half-a-dozen drones.

I tried this five or six times, and never caught a single queen. The whole operation did not take five minutes, and, if it had answered, might have proved very useful.—ARTHUR J. H. WOOD.

QUEEN PASSING THROUGH ZINC EXCLUDER, ETC.

[105.] 'La Grippe' (82) is in trouble with his zinc excluder and his queens passing through it. If advice unsought be not offensive to him he shall have mine free of cost (I did not get it so cheap). I have written in the *B.B.J.* in favour of using excluder zinc before now, and have not changed my opinion respecting its use. But instead of using it upon every hive, I do not use it upon those that are worked for comb honey—that is, one-pound sections with full sheets of foundation. In every other case I use it, and with the greatest success. I should be very sorry indeed to be without it. Has 'La Grippe' the *Record and Adviser* of this year?—because in the March number there is a similar case to his. The writer ('E. Y.') first supposed his to be a genuine case of the queen passing through; but frankly states that, on closer examination, he found a quarter-inch space which was not filled up, and that the queen *could* pass through; and a foot-note by the Editor reads thus:—'Most of the supposed cases are, however, capable of some such explanation.'

Is 'La Grippe' quite sure his queen passed through the perforations? For the sake of the reputation of the manufacturer he might take the exact size of the openings, or send a small piece to the Editor for his opinion. Let me say here that 'La Grippe' will do well to take the advice of the experienced bee-keeper he mentions, and continue its use, always providing it is the proper size. Do not use any with *round* perforations. You were quite right in having a bee-space both above and below, but quite wrong in wishing to confine a prolific queen to eight frames. I have myself thought the same, and passed through your experience some few years back. In practical work I find it will not do to give her majesty less than ten to twelve frames. Last year one queen was selfish enough to occupy fifteen or sixteen with ease, besides furnishing three or four for a neighbouring monarch who was a little behind time.

Take my advice: discontinue the use of queen excluder *in* the brood-chamber. Bees do not take kindly to it there; but still continue to put it under extracting supers and sections that are fitted with starters only. Place in the centre three or four sections ready built out, and let the first extracting super be also furnished with some, if not all, ready-built combs, and wrap up very warm. But before putting them on, see beyond a doubt that there is no possibility of the queen finding a loophole of escape upwards. If your bees are strong to crowding the hive from side to side, and honey coming in, they will take to the super freely. I have no trouble with mine. If I can help you in any way, either through the *Journal* or otherwise, I shall be glad, as I am sure our kind Editor will.

Now I must address my other remarks to the Chair (the Editorial chair). We wonder, Mr. Editor, some of your readers are so sceptical concerning (to use 'La Grippe's' words) 'the enormous quantities of honey some parties get.' Sir, I am not a prophet, but I dare venture to predict that if bee-keeping advances the next twenty years as it has done the last twenty years, instead of sixty, seventy, eighty, or 100 pounds per hive, it will be 160, 180, and 200 pounds per colony. The fact is, bees can do more than most of us think if we only help them a little. As in religion so in bee-keeping, we are satisfied with too little. When the figures of 100, 112, 206 pounds per colony come under my notice, I just think how I would like to grasp the hand of the owner and compare notes, if only for an hour. Reports of these and like quantities taken from a single hive, instead of being excluded from the *B.B.J.* for fear they should damp the courage of amateurs, are the very things that prick the 'self-satisfiedness,' and will eventually prick the unbelief out of those that only take twenty, thirty, or forty pounds per hive when, with abundant pasturage and fine weather, they might take three times the quantity per hive. I am not now alluding to those of our bee-keeping brethren who unfortunately live in a poor honey district. Such quantities, though they be ever such skilful bee-men, are out of their reach.

Some plead for the tits; I plead for the bees. Give them a chance, and see if they won't surprise you who think they can only gather twenty or forty pounds per hive without the aid (after supers are on) of sugar and water as a gentle stimulant. I don't think a bee-keeper who has any respect for himself or for his brother bee-keepers would offer for sale—or even set on his table—a mixture of sugar and water with honey.

This was a slip of 'La Grippe's' pen, or else written in fun. But with the words of a certain professor fresh even yet in our minds, we say (but don't tell the daily papers) honey can be produced and sold—extracted, I mean—at less than 1*s.* per pound, though I seldom take less than that for sections glazed.

I have trespassed to an unpardonable length, Mr. Editor, but I promise to let your other correspondents, whose letters I like to read better than my own, have all the space for months to come.—J. W. Blankley, *Denton, Lincolnshire.*

BEE-KEEPING IN GEASHILL, KING'S COUNTY.

[106.] Having spent a few days at the beginning of February in a rather out-of-the-way part of the centre of Ireland, where there are more stocks of bees than in any other place I know of, I think it worth while to give you a short account of what I saw there.

The district is the parish of Geashill, in King's County, lying between the small towns of Portarlington and Tullamore, and embraces an area of twelve by seven miles. The parish and the barony, which bears the same name, are conterminous. The country is quite flat, and contains many wide stretches of heath-clad bog. The farms are of good size and well furnished with

timber, and a number of hollies and ivy-clad whitethorns approaching the size of trees in all the hedgerows; the fields are framed with evergreens. There is not much reasoning required to point out what an amount of bee-pasturage is in the purple of the heather and the green of the ivy, and the natives, both farmers and labourers, know it. There is scarcely a farmhouse or cottage that I passed, by the side of which I did not see several beehives, mostly the old straw skeps. Some few had wooden hives; but they might be of a better pattern, for such as I got an inspection of were clumsy. A few good models of bar-frame hives are much wanted by these Geashill bee-keepers. And more is the pity, because all the inhabitants have their houses tidy and smart-looking, and even the poorest have neatly-kept bits of gardens, with fruit-trees and some flowers. The straw skeps, also, were properly cared for, and being hooded with hackles of straw, served to adorn the aforesaid gardens. And nowhere did I see any signs of want of attention to the bees.

The honey is sold chiefly in Tullamore, where one or two dealers purchase an enormous amount of it, and 'run it' for themselves, turning a considerable profit on the transaction. I could not help reflecting what an opening there is in Geashill for somebody to lecture, and, by the aid of a few good, necessary appliances, show many of these people how much more profitable it would be to work for comb honey in sections. The place is within easy reach of Dublin—only two hours'. There are a few intelligent and educated bee-keepers in the neighbourhood, but even they are not so far 'advanced' or self-opinionated as to be likely to oppose or shun the visit of a bee-tent.—H. W. Lett.

NOTES FROM IRELAND.

[107.] The weather continues very mild. During last month the local bee-keepers had to give bee-candy on a large scale, to ensure successful wintering. Owing to the very mild nature of the season, natural stores must be much exhausted, and unless great attention is paid to stocks at once, the death-rate in many apiaries will be heavy. I have just arranged a site for my apiary, thanks to Mr. W. J. Davidson, station-master, who has kindly allowed me part of his garden for that purpose. Mr. Davidson is already a scientist in horticulture. Though ranking only as an amateur, his beautifully arranged flower-plots, &c., would do credit to many of our leading profes-ionals. The garden has possibly the finest situation in the neighbourhood—well sheltered, and in every respect suitable. Owing to my very limited time, I don't intend going into the 'hobby' on a large scale; sufficiently, however, to try my mettle with some of our Irish bee-keepers, and possibly with those in 'bonnie Scotland.' Mr. Davidson will, I hope, before the season closes, turn part of his attention to bees, and in so doing I have great hopes that he will prove a hard nut to crack as an amateur.—John D. McNally.

AMATEUR BEE-KEEPING EXPERIENCES—MODE OF WORKING—RESULTS.

[108.] About eight years ago I first started to use the bar-frame hive (having previously used skeps); my apiary since that time has consisted of six or eight stocks. As soon as I became acquainted with the improved system of bee-keeping, I purchased two bar-frame hives, and, having some practical knowledge of carpentering, at once set about making other hives of the same pattern. These hives I stocked with the best swarms from the skeps I had in hand, giving each nine frames with half-sheets of foundation, and the season being a favourable one—the locality abounding with bean-flowers, clover, and mustard, during the summer months—the frames were soon drawn out and well filled with honey, and I was able to take a number of 1-lb. sections at the end of the season, the bees all coming out healthy and strong in the following spring.

As my occupation prevents me from keeping a large apiary, I determined to work entirely on the section principle, with a limited number of stocks, and having visited some of the county shows where the bee-tent was engaged, I there learnt some sound, practical lessons given by our worthy experts on these occasions—namely, the advantage of keeping stocks strong and healthy, confidence when manipulating, to produce honey (whether section or extracted) in its purest and neatest form—and I have undoubtedly found this method the secret of my success to procure a good harvest of surplus honey.

Part of my stocks I work with 1-lb. sections, and if the season is a good one I realise from forty to sixty-five sections from each hive. The remainder of hives I work with 2-lb. sections, for extracting purposes, which give an average yield. My reason for using these 2-lb. sections is because I find they can be easily handled, uncapped, and extracted with little trouble and waste, producing the finest sample of honey from them. The empty combs I place back on hives to be refilled; any unshapely 1-lb. sections I treat in the same way. At the end of the season I store a number of empty combs for use again in the following early spring. The extractor used is the patent 'unique,' specially adapted for extracting 1-lb. or 2-lb. sections, highly recommended by well-known bee-keepers as a most efficient machine for the purpose.

On several occasions I have exhibited honey at local shows and received awards—this greatly helping me to dispose of my honey, realising 10*s*. per dozen for even and well-filled 1-lb. sections; extracted, in 1-lb. jars, 1*s*. each; in bulk, 10*d*. per lb. The remainder I usually sell to respectable dealers at wholesale prices.

Taking into consideration the small outlay after I got established, I must admit that amateur bee-keeping has been so far profitable, and a pleasant study for spare time.—Amateur Member of B.B.K.A.

HOUSE APIARIES AND A NEW DEPARTURE.

(No. 20, p. 44; No. 28, p. 56; No. 50, p. 80.)

[109.] Referring to my new bee-house, heated by four rows of hot-water pipes, the Rev. Mr. Weygand's system, I give you my first success. The winter being very mild, I began *forcing* my fifteen hives the 2nd of February, 45° by day and 55° at night. Feeding strong.

February 13th.—I bought a good old box hive, one of Baldwin's, full of good comb, with a queen and not more than, perhaps, a hundred bees. They have dwindled away since then to a very few, so the brood did not remain covered, all the little clump's warmth being required to save the queen's life.

On the 27th of February, overhauling, I found young bees and brood in all stages sealed, and young brood in all my hives, the result of daily feeding with pea-flour mixed with sugar-syrup, or the latter mixed with flour, including eggs (also Stilton cheese and claret), fed in old combs, in the day-time outside, when sunny weather, and at night-time *inside every hive*. Outside, as much as seven pounds were taken one day. I fed direct into the empty combs next to brood, keeping my bee-house at night ten degrees warmer, up to 55°.

How to save the poor lot was the question. On the day above mentioned, the 27th February, I thought I would venture on an experiment to choose the lesser risk of losing a good queen. I exchanged this box hive for a large bushel straw skep (of course, in the bee-house the bees could not distinguish the difference from outside) full of bees down to the bottom upon the floor-board. To my great delight and pleasure the bees were flying and carrying pea-flour and sugar-syrup that afternoon from outside. Bees entering the exchanged hive, considerably surprised to find instead of a well-filled old straw skep, a different wooden, almost empty box hive, with full combs, a queen, and a few bees left. However, they settled down before four o'clock, when it became cooler and bees discontinued flying. Since then all has gone on well and satisfactory. The severe frosty weather in March has kept all quiet enough, and I am happy to say, thanks to my four rows of hot-water pipes, *warm enough*, as on the night of the 3rd to 4th of March we had 18° of frost, and I was out of bed and down in the garden twice during that night (half-past two and half-past five in the morning) looking to my fires, burning well, and forcing on the cool greenhouse system, keeping frost out, and 55° up inside. Remember, this exchange of hives was done twelve hours before frosty weather set in. The 28th of February, 6°; 1st of March, 8°; 2nd of March, 4°; 3rd of March, 12°; 4th of March, 18° of frost; and on the 5th, less cold; the 6th of March, very mild indeed; 55° outside; no sunshine. '*All is right*,' and my experiment successful. My queen saved a middling good number of bees in her hive.—J. G. K., *Grove House, Southborough, Tunbridge Wells.*

[Our correspondent is alluding to Weygand's system of heating bee-houses. The object is to keep the hives free from moisture, and the heating is kept up through the winter. If the proper temperature is kept up, the bees do not require to take any cleansing flights and void dry fæces. Weygand's experiments, so far, have shown that bees winter better and are free from dysentery and other complaints, brood-rearing is stimulated, and stocks are brought forward in the spring. He also provides the bees with various nitrogenous foods inside the hives. We should be glad if our correspondent would give a description of his house and method of heating, and report further experience with it.—Ed.]

CASTS AND DRONE COMB, ETC.

[110.] To 'advanced' bee-keepers and those who have not yet passed the standards (volumes) preceding the tenth of the *B. B. J.*, I may, perhaps, be permitted to address the following remarks, chiefly with the object of directing their attention to the rich mines of truth to be found in the writings of that king of bee-masters, Mr. C. N. Abbott.

Some of the above truths (deductions drawn with the greatest judgment and astuteness from unequalled experience) seem to be most strangely ignored or forgotten by some of the 'advanced' bee-keepers of to-day. This should not be so. A case in point is now being ventilated in the *B. B. J.*, viz., 'Casts commencing to build drone comb.' You, sir, agree with Mr. Webster's observations on this point, and say that your correspondent, Mr. M. Service, will doubtless do the same if he will, next season, closely observe the proceedings of his swarms and casts. Aye! There's the rub! But it happens that Mr. Webster has *not* observed *closely* enough to arrive at the truth. Does not the cause of the mistake appear obvious? No one disputes that casts may have natural drone comb at *one* side of their hive; but Mr. Webster should have been certain *that the side where he found the drone comb was the side where the bees first commenced to build.*

But I think nothing more need be said by us ordinary bee-keepers now that Mr. Abbott has taken the field. Mr. W. will have his hands full! As for your opinion on the subject, sir, though entitled to have great weight attached to it on account of your long and extensive experience, it seems to me you have tacitly forfeited it, as in your foot-note to Mr. Abbott's characteristically able article (72, p. 101), you altogether ignore his statements, though in direct opposition to those you 'agree with.'—Samuel P. Soal, *West End, Kirby Moorside, Yorks, March 6th*, 1890.

[It is our practice to allow our various correspondents to express their views freely, even if they be in opposition to what 'we agree with.' This is the only way to arrive at the truth; besides, it is the only way of convincing some of our cor-

respondents that they are under a misapprehension. As regards our foot-note on page 72, Mr. Abbott (having been an Editor) fully understood. In this case it happens we *do* agree with Mr. Abbott, and no one was more surprised than we were to find the answer to Mr. Service on page 489 of last volume. It would take too much space to enter into particulars how it slipped into print, but we hope by careful supervision such a mistake will not occur again.—Ed.]

A NATIONAL SHOW.

[111.] Judging from the vast amount of correspondence that has appeared in the *Journal* during the past year anent the superior quality of some honeys, we are sadly in want of a national show. Past experience has also proved to me that we require some renovation in the compilation of our schedules. I can see no good, but rather great evil, in being asked to stage twenty-four sections or jars if six would suit the same end. This remark applies to those exhibitors who run the risk of sending exhibits 200 or 300 miles. To give some idea of what I mean, I may state I was a successful competitor in August, 1888, at the Crystal Palace Show. Notwithstanding the fact that I was in personal attendance, and packed up my exhibits very carefully for the return journey, the damage done to goods on said occasion amounted to 7*l.* 4*s.*, wholesale price. The railway company compensated to the extent of 4*l.* 15*s.* Last year the same thing happened at Hull. I competed there successfully, but my goods were returned in a deplorable mess; and the prizes gained would not half cover the loss on both occasions.

I feel certain if classes were so arranged that the produce from one hive would have the same chance as that produced from fifty, our shows would prove more successful, bring out more competition, and I believe, too, a superior quality of honey. I can fully sympathise with the officials of any show who undertake the staging of fifty or a hundred exhibits, usually arriving on the morning of the show. It is impossible to give all the exhibits the attention they require, hence we hear so much after-grumbling for damage done, &c.

I trust the B. B. K. A. will take up the matter. I know they have heavy calls on their limited resources; but if they offered, say, three medals for each class instead of money, and all the exhibits sent in to become their property, I am of opinion the speculation would not be a losing one, and if for no other purpose we should be able to know each year, with such a competition, where the best honey was raised. A national show is worthy the support of every honey producer, and I shall hope to hear the opinions of some of our more advanced apiarians on the subject, including your own, Mr. Editor.

I am in receipt of *Journal* this morning, and note Mr. Blankley's letter on the above subject. Please put down my name as a competitor, and if the B. B. K. A. undertakes the arrangements, I will give my mite towards defraying the expense. I would suggest the following classes:—

1st ..... 3 1-lb. sections of flower honey.
2nd .... 3 1-lb. „ „ heather honey.
3rd ..... 3 1-lb. jars of extracted liquid.
4th ..... 3 1-lb. „ „ granulated honey.
5th ..... 3 1-lb. „ „ heather honey.
6th ..... Samples of beeswax.

Small super of honey in wood or straw, not over six pounds. The competition to take place about the middle of September; this would suit all bee-keepers.—John D. McNally, *Laurencetown, co. Down, Ireland.*

Queries and Replies.

Query.—My apiary consists of three stocks in combination hives, and five in boxes used for tiering up, simply stood on floor-boards, and well covered at top. Please advise me how to best move them. The distance by road is about ninety miles. My furniture is going by road. I should be glad of any hints as to packing, &c.—James Combley.

Reply.—We should certainly advise you not to send your bees by road for such a long distance. If the weather were warm, you might expect, with such long-continued excitement, that all, or nearly all, the combs would come down. You must secure the frames, and place a piece of perforated zinc over the entrances, and also over frames, in place of the quilts now on. If the frames have distance-guides, or broad shoulders, a rack fixed to the floor-board will keep them from swinging; but if you have only plain frames, the best way is to fasten the frames by putting in sticks at each end half-inch thick by five-eighths-inch wide. First put two sticks in the corners of the hive, then a frame against these, then two more sticks and another frame, until all the combs are in. The last two sticks should be slightly wedge-shaped, so as to push down hard, and the frames should be wedged in so tightly that they cannot move with the roughest handling. If a tack is put through the perforated zinc on the top into the ends of each stick it will prevent any possibility of their giving way. If the frames are not wired, as an additional precaution against the combs breaking down, we should tie a couple of tapes round each frame. As soon as they arrive, place them where they are to stand; open the entrances. Next day remove the perforated zinc over, and the sticks between the frames.

Query.—Wishing to increase my apiary, would you advise me to buy stocks now or later? Is barley sugar a good food for bees just now?—N. S. T.

Reply.—The middle of April is the *safest* time to buy bees—that is, old stocks; May the best time to buy swarms, if you can get them. Unless you can be quite sure of the perfect healthiness of the stocks, you will find it most prudent to get swarms. Barley sugar can be

given, but flour candy, which is more suitable, is made as follows:—Into a tin saucepan put about ¾ pint of water, let this boil, and gradually stir in 6 lbs. of white lump sugar. Keep it boiling, and stir to prevent burning. To test when it is done, drop a little on a plate, and if it sets tolerably hard on cooling, and is only just a little sticky, it is done enough. If, however, it is still very sticky and soft, it must be boiled a little longer. When done, take it off the fire, and stir into it 1 lb. of pea-flour, and when it is setting, pour it out into saucers. When cool, this may be turned out of the saucers and put over the frames. It is capital stimulative feeding.

QUERY.—Has a Bee-keepers' Association yet been started for Lincolnshire, either affiliated to B.B.K.A. or otherwise? If not, it is a pity, as Lincolnshire is a land of Beulah as regards white clover. What would be the proper step to take to start one?—LINCOLNSHIRE NOVICE.

REPLY.—The Lincolnshire B.K.A. was reorganized about a year ago, and is under the presidency of the Lord Bishop of Nottingham. The Hon. Secretary is Mr. J. H. Houghton, Louth, and there are district secretaries in various parts of the county. There are well-known bee-keepers both as members of the Committee and District Secretaries.

Echoes from the Hives.

Kingston-on-Thames.—A bright, mild day, a short time since, offered a great inducement to take a hurried peep into one of my hives, when, owing to the mild season we have had of late, I found the stores all but used up, although they were fairly well supplied, as I considered, in the autumn. As an evidence of the queen's presence I saw scores of eggs, but no larvæ; so I quickly put on a cake of candy, also some syrup, and covered up. Thinking it possible that other bee-keepers might be in a like position, I trust this gentle hint may be of use to them. As far as I can learn, all other hives in this neighbourhood are in good condition at present.—H. CRAWLEY.

Honey Cott, Weston, Leamington, March 12th, 1890.—One of the mornings last week was very severe; thermometer down to 20°. It was very cold and stormy up till Sunday; although snow-storms were flying about, it cleared off towards night, and on Monday morning we had a heavy downpour, after which the thermometer began to rise; and yesterday (Tuesday, 11th) it was 54°. I went up amongst the bees at dinner-time; it was 'hum-m-m, buz-z, get out of my way, hinder me not, I pray; water we must have, and pollen, if we can get it.' However, I did not see any being carried in, so I got some Symington's pea-flour, and put on some shavings in an old beehive, and set it in the sun, which the bees very soon found, and were soon going to and fro, like a lot of dusty millers. I see one or two stocks have lost a good few bees, whilst the majority of stocks are in fair order.

P.S.—Over 55° to-day.

March 12th.—After my echo was written at dinner-time the temperature rose to nearly 60°, thus causing great commotion, enabling the bees to go off to the woods, as I could see them going into their hives laden with natural pollen, as well as the millers returning from the pea-flour which I had placed on shavings in a straw skep. No need to do anything to entice them to find it, as they were at it in a very short time after it was put out; such was the vigour with which they worked at it, that it required to be replenished very often. I give my plan of letting the bees get water, although I may have mentioned it before. I have a barrel standing where I can have it filled every day; it has a tap at bottom, and set so that it drops on to a slanting board right in the sunshine. There is a hedge at the back to protect them, to a great extent, from the wind; so, as the board is always moderately wet, it is frequented by the bees in great numbers; no fear of their drowning. To-night I have been giving candy-cake to ensure them having enough to last another fortnight, in case we may have a cold snap again, which is very likely, as this change seems too good to last any length of time. '*Beware of the ides of March!*'—JOHN WALTON.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

G. BALL.—You will find full information on pages 17 to 23 of Cowan's *Guide*. We cannot afford space to give it in these columns. The book is only 1s. 6d., and will help you a great deal. Whether you do or do not get honey depends so much on matters still in the future, such as weather, strength of stocks, *and management*, that we hesitate to express an opinion. You do not say when you intend removing the combs, therefore we cannot say whether the bees would get them built by the time you name. Most of the young bees remain behind when the swarm rises. We are happy to help you at all times, but it would greatly facilitate matters if you can put your questions clearly. Doubtless you have in your mind some previous question and answer which would make all clear; but much as we wish, we find it impossible to recall a great deal that our correspondents refer to by inference only.

J. F. R. A.—*Cross-bred Bees.*—The bees sent are crossed, but it is impossible to say with certainty from their appearance whether the cross is with Italian or Cyprian, both showing the yellow bands.

SR. G.—We hope to give the particulars shortly.

THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

No. 405. Vol. XVIII. N.S. 13.] MARCH 27, 1890. [*Published Weekly.*

Editorial, Notices, &c.

BRITISH BEE-KEEPERS' ASSOCIATION.

The following is the pamphlet to which the prize of 3*l.* 3*s.* has been awarded by the Committee of the B.B.K.A. The prize was offered for a four-page pamphlet for general distribution, enumerating the benefits conferred on the country through the work carried out by the several Associations, and setting forth the grounds upon which persons are called upon to give their support to such Associations.

Unless there is sufficient demand for such a pamphlet, the B.B.K.A. does not propose to publish it. Secretaries of the several affiliated Associations should communicate with the Secretary of the Central Society as to their requirements in this direction.

BRITISH BEE-KEEPERS' ASSOCIATION.

Founded May, 1874.

OFFICES, KINGS LANGLEY, HERTS.

GENERAL PROSPECTUS.

I. *Objects of the Association.*—The British Bee-keepers' Association was founded in 1874, its main objects being—

1. To unite together, by means of County and District Associations, all bee-keepers throughout the land; and to provide a means for the ready expression and interchange of opinion upon all matters relating to bee-keeping.

2. To advocate a more humane and intelligent treatment for that industrious worker—the honey-bee.

3. To encourage, improve, and advance the practice of bee-keeping in the United Kingdom.

4. To better the condition of cottagers and of the agricultural labouring classes throughout the country.

5. To establish a market for honey, and to spread a knowledge of the most profitable use and disposal of bee-products.

II. *Organization of the Association.*—The Association consists of (*a*) *individual* members scattered throughout the country, each of whom subscribes at least *five shillings* per annum; (*b*) *County* or *District Associations*, which are affiliated with the Central Association, the chief conditions of affiliation being (1) That the general organization is such as is approved by the Central Association; (2) That a subscription of at least *one guinea* per annum be paid by each County or District Association to the funds of the Central Association.

The *chief privileges* of the affiliated Associations are—

1. To elect *two* members of each Association as representatives to attend the quarterly meetings of the Central Association, and through these representatives to propose and discuss measures for advancing the objects of the Association.

2. To receive from the Central Association, for each guinea subscribed, one silver medal, one bronze medal, and one certificate, to be offered as prizes for honey among the members of the affiliated Association. The awards to be made by a judge approved by the Central Association, and conditions attaching to the same to be fulfilled by the winners.

3. To purchase, through their Secretaries, all publications of the Central Association at *trade prices*.

4. To use the bee-tent of the B.B.K.A. at their shows and exhibitions, paying only the cost of conveying the same.

Quarterly meetings of the Central Association are held in London, which all members are entitled to attend, with the County representatives. At these meetings subjects of interest to bee-keepers are introduced and discussed; papers are read, and new inventions and improvements are brought forward for exhibition and criticism. Reports of these meetings are sent to all members of the B.B.K.A. According to the last report of the Central Association thirty-two County and District Associations, each numbering some hundreds of members, are in affiliation, and the number of individual members is several thousand.

III. *Past Work of the Association.*

1. It has brought about a more humane treatment of the honey-bee by teaching a 'new and better way' than the sulphur pit of old, and has succeeded in extending an interest in scientific bee-keeping. These results have been obtained by the use of the bee-tent at numerous shows, where lectures have been delivered by members skilled in bee-culture, and qualified experts have given practical demonstrations in the manipulation of hives and appliances.

2. It has published and circulated cheap books and pamphlets treating of the principles of bee-management in a plain and easy style. By making the *British Bee Journal* its official organ readers are enabled, for a penny per week, to keep themselves constantly posted in all the latest and most useful information concerning bee-keeping; while for the especial use of the labouring class the *Record and Adviser* is issued monthly at twopence, for which small sum all needful aid is given in hints and information. It has established for the *free use* of members a most valuable library of bee-literature, consisting of upwards of 200 volumes, and containing all the principal works—English and foreign—published on bees and bee-keeping.

3. It has led to a most careful and scientific study of the honey-bee—its anatomy, its physiology, its life-history, its enemies, its diseases and their remedies, &c., thus offering a most fascinating pursuit to all interested in the study of natural history, and affording to bee-keepers information on many points which formerly were shrouded in mystery or donbt. To assist in the spread of this knowledge, diagrams, illustrating the life-history of the honey-bee, and setting forth the most marked peculiarities of its structure, have been printed and published by the Association.

4. It has conferred an incalculable boon upon practical bee-keeping by adopting and setting forth a 'Standard frame' for movable bar-frame hives, thus giving ease and simplicity in hive manipulation and in the practical management of an apiary.

5. It has been the means of producing many new inventions and many improvements in appliances for bee-keeping by offering prizes at its leading exhibitions; and, by stimulating competition among manufacturers and dealers, it has caused hives and all bee-keeping appliances to be produced at a greatly reduced cost. The manufacture of apicultural apparatus has of late years become an important and increasing branch of industry, of which the leaders, in many instances, are practical bee-keepers of no mean skill.

6. It has shown that our 'home produce' can hold its own in foreign competition for flavour, purity, and get-up. The prizes offered by the B.B.K.A. are much sought after by skilful bee-keepers, and the keen competition and high standard of excellence of its shows have raised the production of comb and extracted honey to a point little short of perfection. Its last great show, held in connexion with the Jubilee Exhibition of the Royal Agricultural Society at Windsor, in June last (1889), was deemed worthy of a visit even by Her Most Gracious Majesty Queen Victoria.

7. These shows and the shows of the affiliated Associations bring honey of the finest quality prominently before the public, and thus afford to the bee-keeper an excellent medium for the disposal of his produce.

8. In 1882 the B.B.K.A. instituted a scheme of examinations for 'Certificates of Competency in Modern Bee-keeping,' so that it may send forth experts duly qualified to lecture and advise on bee-keeping, and to demonstrate, by actual manipulations in the bee-tent, the practical methods employed in the management of bees, and in the use of various bee-keeping appliances. Upwards of 150 of these certificates have now been granted, and it has been recently decided, both in America and on the Continent, to grant similar certificates on almost identical lines.

9. Social advantages have been obtained by the friendly intercourse brought about among all bee-keepers. Here rich and poor, educated and ignorant, meet upon a platform of common interest; they are all engrossed in the same pursuit.

IV. *Future Work of the Association.*

The character of this is clearly indicated by what has been already accomplished in the past. In short, the Association has in future only to complete that which it has so well begun. It must continue its crusade against the cruel and needless destruction of bees, by inducing the old-fashioned bee-keeper, wherever found, to adopt the more humane method. It must continue to practically instruct, to advise, and to assist all converts to the modern system. The vast mass of agricultural labourers are as yet untouched, their interest in bee-keeping is practically *nil*. Their enthusiasm must be awakened, and they must be taught that bees, properly managed, are as surely a source of profit as pigs or poultry. To accomplish this result the Association must devise some scheme by which honey can be readily marketed, so that the cottage bee-keeper, instead of finding it remain a drug upon his hands, shall be able to easily convert it into coin of the realm. The solution of this 'sale problem' will do more to arouse the interest of the labouring classes in modern bee-keeping than all other means combined. It will create, first, the desire to keep bees, and then the wish to keep them in the most profitable manner. The high standard of the Association's shows must be maintained, and the qualifications of its experts rigorously scrutinised.

V. *Appeal for Support to the Association.*

Having thus briefly outlined the work accomplished and contemplated by the B.B.K.A., a confident appeal is made to all bee-keepers, and to all interested in bee-keeping, to liberally support this worthy institution. Its past action has resulted in raising apiculture to its present important position in the country; consequently, *all bee-keepers reap the benefit of its action.* Let *all*, then, join its ranks, either directly as individual members of the Central Association, or indirectly as members of some affiliated Association. For, how can the aims of the Association be better carried out than by joining hand in hand with each other? We are all well acquainted with the power of union, with the advantages of co-operation—in fact, with the gains of association. The honey-bee is an ever-present witness to them. Let, then, the bee-keeper of ripe experience place his knowledge at

the disposal of the beginner! Let the expert manipulator instruct the novice! Let the wealthy assist the poor with influence and purse! So shall modern bee-keeping become a common industry throughout the land, the money now spent in imports of foreign honey shall be paid for 'real native,' and the 'brimstone pit' be known no more.

Persons desirous of subscribing to the Central Association, or of assisting in the formation of new Associations, should communicate with the Secretary, Mr. J. Huckle, Kings Langley, Herts, from whom all necessary information may be readily obtained.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee meeting, held at 105 Jermyn Street, on Tuesday, March 18th. Present: Mr. T. W. Cowan (in the chair), Rev. Dr. Bartrum Hon. and Rev. H. Bligh, Rev. J. L. Seager, Captain Bush, R.N., Messrs. W. Lees McClure, H. Jonas, V. Hasluck, W. H. Harris, J. Garratt, W. O. B. Glennie (Treasurer), and the Secretary. Letters were read from the Rev. R. Errington, Rev. F. T. Scott, Captain Campbell, and Mr. Andrews, regretting their inability to be present.

The statement of accounts for the month ending February 28th was read and adopted. On the recommendation of the Finance Committee, it was resolved to proceed to reissue the pamphlet, *Honey as Food*, and a new edition of *Modern Bee-keeping*, consisting of 10,000 copies.

Mr. Garratt reported that the Council of the Bath and West of England Agricultural Society would finally consider the question of the Bee Department at the Rochester Show on the 25th inst. Resolved, that in the event of favourable arrangements being made the Exhibitions Sub-Committee be empowered to prepare and issue a suitable prize schedule.

The Chairman was requested to communicate with Sir James Whitehead, President of the Fruiterers' Company, in respect to the proposal of combining instruction in bee-keeping with that of fruit-culture.

The Secretary was instructed to communicate with the Secretaries of the affiliated Associations, and to inform them that April 15th was the last day for receiving copies of the reports for binding purposes.

Notes on Novelties.

WEBSTER'S AUTOMATIC SUPER CLEARER.

We have received one of these, which is introduced as a labour-saving appliance, and one which will render the clearing of supers from bees quite an easy task to the novice. The idea has been causing some amount of attention among bee-keepers in America, and it is mainly owing to the invention of two gentlemen, Messrs. Dibbern and Reece of the United States, that the idea presented itself to the mind of Mr. Webster. Working somewhat upon the lines of these inventions, 'Webster's Automatic Super Clearer' has been produced.

It consists of a board ($\frac{1}{2}$-inch) sufficiently large to cover a section rack; in this are one or more pear-shaped spaces, covered with zinc, having a hole of about $\frac{3}{4}$-inch in the centre; over this hole is a wire network in a circular form, having a tube running from one side, raised at its exit a bee-space from its base. The bees can pass out, but have not sense enough to pass back through the same opening, and endeavour to do so through the base of the network just where it covers the hole in the piece of zinc. The escapes are within the thickness of a half-inch board, and so cannot get damaged by brace combs to prevent their efficacy or cause an accident.

To those who may not know what such an appliance is, or how it is used, it may be advisable to give some information. It may be briefly described as a passage-way admitting of easy exit, but, to be perfect, a sure preventive of ingress. Thus, if it is placed in a proper position between a rack and body of hive, the bees becoming separated from the main body rejoin it by passing through the escape, but are prevented, from its peculiar construction, from again entering the rack, which can be taken off the hive empty of bees, with no chance of being stung or finding the sections perforated. This last point is important, it being well known that where racks are removed entirely from the hive, those bees remaining in the rack will, in order to secure a provision of honey, commence gorging from the sections; and to get at it, they make these perforations in the cappings, and spoil the appearance and keeping qualities of the sections. With this appliance it is avoided, as the rack, while being automatically emptied, is in its original position on the hive, and in communication with it through the hole or holes—netted over—left for that purpose. The bees therefore do not feel in a condition which makes it necessary for them to gorge, and the sections are undamaged. Any super can be emptied in the same manner. To fix the appliance the super or rack should be raised, say, in the morning, the clearer slipped under, and by evening it will be quite free from bees, they having rejoined their companions, and are prevented from returning. Mr. Webster has not tried one of these upon a colony, but another, upon the same principle, he tells us, has answered well, so we presume this, being more simple, will work equally well.

CATALOGUES RECEIVED.

Mr. J. Howard, Holme, Peterborough.
Mr. A. Godman, St. Albans.
Mr. G. Stothard, Welwyn, Herts.
Mr. S. J. Baldwin, Bromley, Kent; and
Mr. Piggott.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 1st page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

BEES AND FRUIT-TREES.

[112.] As you ask for experiences in the matter of observations with regard to bees and the fructifying of fruit blossoms, the following incident may be not altogether without interest. When I first came to Norfolk, nearly opposite my apiary stood a fair-sized, white-heart cherry-tree. My parishioners informed me that rarely, if ever, was there any fruit upon it, and yet, curiously enough, every year it would be laden with its lovely blossoms. The first of the two years of my possession there was an increase in the amount of set fruit; the second year there must have been many hundreds of well-formed cherries. No doubt our favourite feathery songsters took their share thereof, and I am sure other songsters also, though, forsooth, without feathers—my garden adjoined the church—found out, from experience, that the *Benedicite, omnia opera*, had a far deeper meaning when their tuneful palates were moistened with the luscious juice of that glossy fruit. Alas, sir! how many a spot defiles the robe worn by an earthly saint! A. E. BOOKER HILL, *The Chase, King's Lynn.*

AN EARLY DRONE.

[113.] To-day, March 17th, as I was, during a few spare moments, sitting watching my bees busily carrying in pollen, I was astonished to hear the unmistakable note of a drone, and on watching a very promising-looking hive saw one come out. This being unusually early, my suspicions were aroused as to whether all was right, so, as the sun was shining warmly, I was tempted to raise a central comb, which to my satisfaction I found nearly full of regular worker sealed brood. The bees have wintered on eight frames, all of which are crowded with bees. As this is unusually early you may think it worth recording.—H. COBB, *Dorchester, Wallingford, Certif. Expert.*

EXPERT CERTIFICATES.

[114.] Several gentlemen have written to me lately about having no opportunity of sitting for a certificate in bee-keeping. I am not a member of the B. B. K. A., nor yet of an affiliated association, but would very soon be one if I could get a chance of entering for my examination.

Now, Mr. Editor, what I wish to suggest is, would it not be possible to have an examiner appointed for Scotland? Personally, I would have no objection to go to any part of Scotland to pass my examination. I happen to know a good many in this part of Perthshire who are ready to join the B. B. K. A., or an affiliated association, provided they get an opportunity of trying for a certificate. I have kept bees for the past seven years, and have read the *B. B. Journal* and *Record* for the past five years. I have also read and studied Cowan's *Guide-book*, Cheshire's *Bees and Bee-keeping*, and many others beside. Now, I am convinced I am perfectly able to take a third-class certificate provided I have the opportunity.

We have also an association in this district with some thirty-five members, representing 100 stocks. We meet every month, when one of our members reads a paper on any subject connected with bee-keeping, followed by a discussion. Now, sir, I think if we are willing to join the B. B. K. A., we ought in all fairness to get an opportunity of undergoing our examination.

Please, Mr. 'Useful Hints,' enter my name for the national competition.—R. F. PATTON, *Luncarty, Perthshire.*

[The British Bee-keepers' Association provides an examiner to conduct examinations on payment of his travelling expenses; the arrangements for such examinations have to be made by the affiliated associations. There are two such affiliated associations in Scotland, viz., the Berwickshire and the East Lothian. We would advise our correspondent to place himself in communication with these associations. The Secretary of the East Lothian, which is the nearest association, is Mr. G. D. Clark, Kirklandhill, Dunbar. Our correspondent's association could affiliate with the British. The particulars could be had of Mr. J. Huckle, Kings Langley, Herts.—ED.]

A SUGGESTION.

[115.] I should like to call the attention of all correspondents of the *B. B. Journal* to the practice of using Latin words in very essential reports and letters. I am sure that in our district the majority are working men, and not qualified in reading the Latin language, so I'm sure it would be more beneficial to us if English words were used in the place of the former. Trusting that all will be in favour of this suggestion.—GEORGE PARKER, *Boadley Street, Wotton-under-Edge.*

CELLULOID FOUNDATION.

[116.] I shall be thankful for your reply to the following queries:—

Have you any knowledge of sheets of vulcanite or celluloid impressed same as comb foundation being used in brood chamber? If so, by whom, and with what result?

Assuming a negative reply, Do you not think the same worth trying, and if so, could you name any maker or makers of foundation machines with hard-metal rollers or plates, *i.e.*, iron or steel? And, further, do you not think that the same should give better results than the wooden base made by Aspinwall, and which Professor Cook, of Michigan, U.S.A., is so pleased with?

If feasible, perhaps some of the rubber goods manufacturers might turn us out a *frame* with base all complete. All that would then be necessary would be to coat the base with wax, the same as the ancients coated their pictures.

I think this would give us great command over swarming and 'foul brood,' and in case of the latter, we could dip our combs in boiling water, &c.

I am well aware that many substances have been incorporated *with the foundation* which the bees resent, but I never came across the two I have mentioned.

I even think that softened wood sheets put under heavy rollers would give a cheaper, and perhaps better, article than the before-mentioned base with *bored* holes for cells.

Our little friends seem to abominate anything of a fibrous nature, but given anything they cannot gnaw or tease out, they seem to settle down to the inevitable.

Perhaps if of no interest, you would kindly pass along to some of the go-ahead inventive of the fraternity, who may see something in it.

I wrote A. I. Root some time ago, but have not received any reply. I forgot at the time that he 'had tried almost everything' in that line, and 'proved it a failure.'

Though not a direct subscriber to the *B.B.J.*, I have been a constant reader of the same for many years, as also of most of the American journals. I may say that I could not well do without a perusal of the batch each mail brings, and thank you for the many hints received.

Trusting you will forgive the length of this communication.—W. C. Brown, *Dunedin, Otago, New Zealand.*

[We have no knowledge of vulcanite or celluloid being used for this purpose, but do not see any difficulty in impressing the sheets with the bases of cells, as suggested by our correspondent. Steel rolls can be made for this purpose.—Ed.]

FERTILISATION OF FRUIT BY BEES.

[117.] You ask for details and facts respecting the fertilisation of fruit by bees, in order to lay them before the Minister of Agriculture. The scientific side of the question, I suppose, would come first in any statement laid by the B.B.K.A. before the Government or the Fruiterers' Company?

Personally I may say that a good many years ago, before I began to keep bees, my attention was especially attracted to a garden in which bees were kept by the fact that the occupier assured me that the fruit-crop was always good because of his bees. My fruit-harvest since I have been in Essex and have kept strong stocks of bees in my garden has been particularly good. During 1889 I carefully observed a large number of gardens in which bees were kept, and found good crops almost without exception. Yet the fruit of 1889 was a failure as a general rule. A large fruit-grower from Worcestershire wrote me word recently that he had noticed in a low-lying garden, particularly exposed to the frosts, that the apple and general fruit-crop was good, although the crops all around were very poor. The reason for a good crop in one garden and a bad crop in the others was that bees were kept in the former, not in the latter. A well-known and distinguished lady bee-keeper residing in Herts, bears strong testimony to the utility of bees in increasing the fruit-crops. I believe it is a fact that Sir John Hooker, the former Director of the Botanical Gardens at Kew, recommended Lord Sudeley to keep bees in the centre of his famous fruit-farm at Toddington, in Gloucestershire. A large number of stocks were formerly kept there, and probably are so still. These hives, at the time of my visit, brought in a large return in honey, while the bees also fertilised the fruit-blossom. A gardening friend of mine, now deceased, very famous in Herts for his pears and stone-fruits, used to keep bees for the special purpose of fertilisation, and I have seen hives in his peach-houses, put in just at the time when the blossoms were expanding. I mentioned in a former article that my friend, Mr. Dance, the head gardener at Gosfield Hall Gardens, Essex, keeps bees in hives placed at intervals throughout his grounds. His fruit-crop in 1889, a bad year, was excellent.

The importance of placing bees at intervals in a large garden is not, in my opinion, sufficiently recognised. In April and May there are often fine intervals in wet weather. If the bees are close at hand they can discharge their appointed duty, and fully fertilise many of the blossoms; but in wet or cold weather they will not travel far, so should not be all placed together in a large garden. A friend of mine, more devoted to roses than fruit, is inclined to doubt the fertilisation theory. One stormy spring I told him he would have no apple-crop, as he had no bees close at hand. Some weeks subsequently he pointed in triumph to his trees, which appeared to be covered with small apples. His chickens were hatching, and he had begun to count them! 'Count no man happy till the day of his death,' said the old Greeks, so don't count your crop till you have gathered it in. The blossoms had not been fully fertilised; nutrition was wanting in the imperfect parts; before autumn almost all the apples had fallen. I trust these jottings may be of some service.—E. Bartrum, D.D., *Wakes Colne, Essex.*

JAMAICA EXHIBITION.

[118.] Will you allow me space in your valued paper to draw the attention of dealers in bee-keepers' supplies to an exhibition to be held in Jamaica in January, 1891, and to inform them that a special pavilion has been set apart for the exhibition of bees and bee-keeping appliances?

As the exhibition will be held in the middle of our honey season, and as the Commissioners hope to attract many visitors, not only from Europe and the United States and Canada, but also from Central and South America and the other West Indian Islands, it would appear to be a capital opportunity for showing up modern bee-keeping appliances in this part of the world.

The Jamaica Bee-keepers' Association have been asked by the Exhibition Commissioners to work up the bee-keeping department, and they will be happy to furnish bees for any hives, &c., which dealers might wish to show working, and to do all in their power to show off exhibits to the best advantage.

Should any of your readers feel inclined to send some exhibits, and will communicate with me on the subject, I will procure and forward to them copies of the regulations and forms of application for space (a copy of which I also send to you under separate cover for information), and any other particulars they may require.

All information with regard to the exhibition can also be obtained from the London Committee, of which the chairman is C. Washington Eves, Esq., C.M.G., F.R.G.S., 1 Fen Court, London, E.C.

Applications for space have to be sent in not later than July 1st, 1890.—C. O. MAGNAN, *Hon. Sec. Jamaica Bee-keepers' Association, Kingston, Jamaica.*

CURE FOR BEE-STINGS.

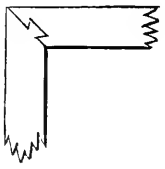
[119.] Several notices have appeared in your paper of 'Bee-stings as a cure for rheumatism and sciatica,' &c., but no one, so far as I have seen, has mentioned 'Bee-stings as a cure for bee-stings;' in other words, that the poison of the honey-bee—*Apis mellifica*—taken homœopathically, cures the swelling, inflammation, and other miseries attendant on a sting. I know from bitter personal experience what it is to suffer from stings—one even has caused me intense pain and discomfort for quite a week; so I would say to all my fellow-sufferers and fellow-bee-keepers and bee-keeperesses, go to a homœopathic chemist and get a little sixpenny bottle of tincture of *Apis mellifica*, and when the next little bee prods you in his vicious way, and when half-an-hour afterwards you begin to 'swell wisibly,' go to the said little bottle and put *one drop* of the tincture into a tablespoonful of water for your first dose, which repeat if necessary. It is an exemplification of the old proverb, 'A hair of the dog that bit you.'—AN ARDENT BEE-KEEPERESS.

BEE-HOUSES.

[120.] While the subject of bee-houses is under consideration I would strongly advise inexperienced bee-keepers not to adopt the system at present. There can be no doubt about the many advantages obtained by having a well-constructed bee-house, but until we have overcome the foul-brood scourge—which seems to be rather on the increase—it will not be wise to pack a large number of hives in a house, or even under a roof. With hives placed at distances of several feet apart on separate stands, it is possible to avoid a general attack by removing the one which gives the first indications of disease, and using carbolic freely; but with a house containing only twelve hives the chances are that nothing would save a single stock from destruction, and larger numbers run greater risks. I have seen twenty-four stocks of bees destroyed in a few weeks, and the disease appeared to infest the house as much as the hives, for even years after this event no bees could be kept in that house.—THOS. F. WARD, *Church House, Highgate.*

NOTES ON BEEHIVES—SECTIONS.

[121]. I am not certain whether the following joint is a patent, but I shall be glad to receive any information and opinions regarding it.



The late Mr. G. Henderson expressed his opinion to me in a friendly letter, saying he had often wondered why hive-makers had not adopted it. I think all will agree that it would be very suitable for hives, supers, frames, &c.

I believe I have already pointed out that there is not much difficulty in getting sections filled at the top or bottom, but the sides are the parts usually left unfinished. To understand this I have made many experiments, and come to the conclusion that a vertical unobstructed passage-way is what is required, and to have the sides filled and the corners without passage-ways there should be a quarter-inch flange on the sides of the sections. The sides of the sections might be $1\frac{3}{4}$ inches wide, and the top and bottom bars $1\frac{1}{4}$ inches wide. Four-piece dovetail sections give the best shape, but if one-piece sections having the square joint can be obtained to the above dimensions they would be almost equal in every point. Of course, separators could be made to do the same work as a flange to the sections.—J. BONNER CHAMBERS, *Rhindlas Villa, Trefriw, Carnarvonshire.*

NORTHUMBERLAND COUNTY ASSOCIATION.

[122.] I have waited with great patience to see when the above County Association was to become a reality. In the *B. B. J.* dated 21st July, 1887, it was stated that a meeting of bee-keepers was held in the bee-tent in the Agricultural Show-grounds, Newcastle, on the 14th July, when four resolutions were passed. I really think his Grace the Duke of Northumberland must think the request that he should be President a hoax; at least, I think so. I believe a meeting of the Committee was called, and I am informed the Secretary failed to turn up without giving any explanation, and no meeting has been called since. I must say every time I open my *Journal* I expect to see something about the Association; but, alas! a blank. Now, sir, there are plenty of bee-keepers in Northumberland to make a good B.K.A.; but there is one thing that could be done—form District Associations, and I think there is a rule that will admit such into affiliation with the central society. I have pressed several of the Committee in this district to start one. I wish we had one of them here. But I do not blame the Committee so much as the Secretary. Why cannot the Committee call a meeting and appoint one that will act? I now ask the Committee to be up and doing. I would say that I shall render any assistance in my power if we only can get a start. I hope I have not taken up too much of your space.—NORTH TYNE, *Northumberland, March 18th*, 1890.

EXPERIENCES.

[123.] Last July a friend sent up to my house to say his bees were swarming, and asked if I would care to have a swarm. I had never kept bees before, nor had I any contrivance ready for them, but I at once sent back a reply that I would be very glad of a swarm. I set to work in the garden at once, and made a stand for them, and in half an hour's time the gardener returned, bringing the bees with him in a skep. We duly placed this on the stand, and I ordered a bar-frame hive from Leicester, which came about a fortnight after I first got the bees. The latter were transferred from the skep to the hive by my friend and myself. Neither of us having ever undertaken anything of the kind before, it took us well on to three hours to accomplish this, which, however, we managed successfully at last.

During July and August I fed the bees well with syrup to give them a good start. Towards the end of August I went into Yorkshire for a holiday of three weeks. When I returned I again fed the bees well until about the middle of October. I then thought I might cease, as they seemed to have ample supplies to last over the winter, none of the honey having ever been taken.

All seemed to go well until about three weeks ago, when, on one or two warm days, I saw no bees coming out of the hive. I then made them some candy, and carefully put it on tops of the frames, closing all very quickly, but I had time to see that there appeared to be large clusters of bees near the tops of the frames in a semi-torpid condition. Being afterwards confined to the house with the prevailing epidemic, influenza, I watched the hive daily from the windows, but the bees never came out, and I began greatly to fear something had gone wrong. Last Friday being a warm and mild day, I ventured out, and at once made for the hive and opened it, only, alas! to find every bee dead. It has been a great disappointment to me, for I had taken such interest in my pets, and such care of them, that I quite looked forward to seeing them on the flight again this spring. Their stores had all vanished, and I expect when I put the candy in they were too weak to take advantage of it. I brought three large soup-plates full of them into the dining-room, and kept them before the fire the whole afternoon to try and revive them, but all to no purpose.

I now wish to replace them, and write to ask if it would be better to wait until June (as a friend advises me) for a swarm, or if I can get a stock now. I am impatient, and want them at once, if possible.—AMATEUR.

[Your swarm, which probably was a cast, was late to begin with. The bees had no chance to gather stores so late in the season, so that they depended entirely on the supply you gave them. The candy you supplied them with was too late to save them. We should advise you to wait and purchase a swarm in May; but if you would rather have a stock now, see that it is strong, and that the combs are in good condition—straight, and not too old. They should be free from mould, and as this year brood-rearing has commenced very early, owing to the mildness of the winter, a strong stock should have brood on at least three or four of the combs.—ED.]

BEE-KEEPING FOR PROFIT.

[124.] It is perhaps within the mark to say that nine-tenths of all who have started bee-keeping, have begun solely with a view to profit. This is corroborated by the fact that almost all the complaints made in connexion with the pursuit are similar to those of your correspondents, 'La Grippe' (No. 82, page 107 of *B.B.J.*) and 'Green Isle' (No. 86, page 117), on the above subject.

In the *Record and Adviser* for February last, page 6, there is a well-written article from the pen of 'S. J., St. Asaph.' The writer describes how there are other motives that should be taken into consideration with bee-keepers besides the question of *how to make it pay*. He divides them into classes, or into a sort of Jacob's ladder, and shows the views of each individual according to the step or *rung* on which he stands. While it may be admitted that there are some few who have other motives—higher and loftier they may be—in keeping bees than that of *profit*, scientists, hobbyists, faddists, or call them what you will, who have done, and are doing, good to the 'cause' in their own sphere, there is

no gainsaying the fact that the great bulk of those who engage in the pursuit have the question of *l. s. d.* strongly before them, and I must admit, I have always taken my stand with the majority on the keeping of bees for profit.

Few, if any, in this country have ever ventured on bee-keeping *solely* as a business, but so far as my experience has gone, I have yet to be convinced that it is impossible to make it a success. The past year or two has no doubt 'cooled the courage' of some, bad seasons and low prices coming together, all of which, in one sense, was a sort of 'blessing in disguise.' We were just going a little too fast for the times. Any one who is *thoroughly* practical, and not afraid to roll up his sleeves and do a lot of work when wanted, and, at the same time, be able to push a good market for his productions, need not fear to make as comfortable a living from the keeping of bees as from any other rural pursuit. Of course those who think of making the attempt should, as I have elsewhere stated, have a 'nest-egg' to fall back upon in a bad season. Farming, fruit-growing, and many other industries, have all had their bad times, so that bee-keeping forms no exception.

Bee-keepers have much to blame themselves for in the low prices complained of by 'Green Isle.' In most cases it has been the working classes who are responsible, by rushing all their honey on the market at one time, just to take whatever the middleman cared to give, he reaping all the profit. Putting one season with another, the working man bee-keeper will find no other pursuit so profitable as that of keeping bees, even admitting that honey comes down to sixpence a pound—a price at which I have never yet sold. For a single hive in one season a very low average is 40 lbs. surplus, which, at the above price, is 20*s.*, so that any cottager owning twenty stocks would find this a handsome addition to his income. This, when a bad season does come, ought to make him the better able to stand the loss. The bee-keepers of the future will, in my opinion, be largely composed of the working classes, who have a better prospect to make profit out of their bees than one who adopts the calling as a business. The latter must keep a greater number of stocks, which, in proportion, give a less return, while a bad season and low prices will more seriously affect his purse. As a rule, however, he gets the highest price for his honey, because he has a name already established, and knows how, when, and where to place his produce on the market. This alone should be the aim of all who intend to make bee-keeping profitable.—W. McNally.

[Exactly so, Mr. McNally; not only does the cottage bee-keeper escape the risk of heavy losses in bad seasons (which the bee-master who owns a large number of stocks must of necessity run), but in a good season he has also the advantage over the larger owner, in that he is able by attention to the individual wants and peculiarities of each of his stocks to secure a larger return per hive.—Ed.]

PREVENTING SWARMING.

[125.] A great deal has been said and written on the above subject, but, judging from the correspondence that has appeared in the *Journal* since the close of last honey season, 1889 will long be remembered for its many swarms, and the unprecedented difficulty in controlling the 'swarming fever.' Even experts tell us that the swarming propensity of their bees was more than a match for their skill. It would therefore appear that the art of preventing swarms is as yet only partially understood. Fond as I am of bees, my main object in keeping them is profit. My only source of profit is honey, and I long since discovered that the non-swarming system, when properly conducted, would give me better returns than any other method I could adopt. I raise queens, and build up a number of stocks each year from nuclei, but in such a way that the total yield of honey from my apiary is not thereby diminished; therefore every natural swarm that issues means to me a dead loss, even if I am fortunate enough to capture it, which is very doubtful, my time during swarming hours being fully occupied in other and more important matters; so that if I am to obtain the best possible results from my bees, it is of the greatest importance—yea, absolutely necessary—that I become thoroughly proficient in the art of preventing swarms, and with that end in view I have worked hard for many years. I have so far succeeded that last year, when nearly everybody was complaining of the uncontrollable nature of their bees, I had but two swarms from twenty-five stocks, and those two from entirely unexpected quarters; this is, to say the least, encouraging.

I use long hives, many of which take eighteen, and some twenty, standard frames. I work for both kinds of honey, but principally section. I keep none but native bees, and am never troubled with foul brood. I use no queen-excluder, and have no spoilt sections; I therefore look upon excluder zinc as an unnecessary expense, and consider its use a great incentive to swarming.

Some authorities advise limiting the brood-nest to nine or ten frames, to which I object. I believe in giving the queen full liberty, so that she may lay the utmost number of eggs that she is capable of laying. Many of my hives, at the time of supering, contain fifteen frames of brood, and it is nothing unusual to exceed that number. With me a large brood-nest means a large surplus of honey, whatever may be the experience of others in the matter. When bees have well taken to surplus, a watchful eye is kept on external appearances, which indicate pretty accurately what is going on within. I never open a hive except in case of necessity, as I have a great objection to pulling my bees about. Many of my stocks were only pulled to pieces once during the whole of last spring and summer, and that once was a *few hours* only before they would have swarmed. When I come across a stock that is on the

point of swarming, I raise the super sufficiently to admit a carbolised sheet between it and the hive proper. The super is then lifted off and placed on a flat board, the quilt being left in position. The bees in the super are thus temporarily confined, so that I have no trouble from that quarter. The dummy is then slipped back, and the combs parted. The one on which the queen is found is placed at rear of dummy, and covered over with a piece of quilting. I am then at liberty to manipulate the remainder of the combs in any way I think fit without the slightest fear of losing, or in any way injuring, the queen.

Supposing this to be the first stock that has prepared for swarming, I take out three frames of brood and bees, with as many queen-cells on as possible, and put them in an empty hive, which is carried to a new stand. The remainder of the combs are then quickly, but carefully, examined, and every queen-cell cut out. Three frames of foundation are substituted for the three frames of brood, &c., removed, and are placed in *centre* of hive. The comb, with queen, is then placed next to said frames of foundation, remaining combs are brought into position and closed up with dummy, a crate of empty sections put on, on top of which is placed the super previously removed; and that stock will not swarm, nor have any further inclination to swarm, throughout the season, nor will the work in supers be visibly retarded. The whole of the operation need not occupy more than a quarter of an hour. I have frequently had to perform it in less time than that, or run a great risk of losing a valuable swarm.

Returning to nucleus: the bees that have previously flown will of course go back to old hive, but young bees from the three frames of ripe brood will be hatching out in such numbers that the population of the said nucleus will increase rather than diminish. When the young queens are about to hatch, which I have known to take place as early as the fifth day after formation of nucleus, as many nuclei as there are queen-cells are formed with frames of brood and bees from other hives, which by that time are about to swarm. Any stock that shows signs of swarming after I have as many nuclei as I require, are simply overhauled, and every queen-cell cut out; three frames of brood, *without* bees, are taken from centre, and replaced with that number of frames of foundation. The brood thus removed is distributed amongst nuclei, and in that way they are built up into first-rate colonies at practically no expense.

I get my run honey from my strongest stocks, those in twenty-frame hives; the space at back of brood-nest is filled up with very thick combs, which are used exclusively as honey receptacles, the cells being too deep for the queen to lay in. This also gives me sufficient surface at top of frames to work two crates of twenty-one sections side by side, and I sometimes find it necessary to also have them two deep, making a total of four crates, which are rapidly reduced as soon as I think the height of the honey season passed. Before the end of the season, the whole of the sections are removed, and the unfinished ones given to stocks that are being worked exclusively for sectional honey. The thick combs are then extracted and returned to receive the later income of honey, which here is always of inferior quality. Thus, in a very simple way, I get my run honey graded, and also manage to get most of my sections completed. The number of unfinished sections at close of last season was less than five per cent of the total number used.—A. SHARP, *The Apiary, Huntingdon.*

SHALLOW FRAMES.

[126.] In reply to 'W. B.'s' letter (No. 89, issue of the 6th inst.), I quite agree that frames $1\frac{3}{4}$ inches wide are unsuitable for other purposes than holding sections; but not so those $\frac{7}{8}$ths to 1 inch wide, which are eminently suitable for obtaining extracted honey, and spaced $1\frac{5}{8}$ inches from centre to centre—my saying $1\frac{3}{4}$ inches was an error of calculation—not unsuitable for rearing brood in, as evidenced by seventeen out of forty-five (five boxes of them) being so used by the bees, and this notwithstanding that the shallow frames were placed at right angles to brood-frames below in order to reduce the inconvenience of brace-combs to a minimum. The main point was that the queen did not pass through them to the sections; but the workers did to such good purpose as to complete from seventy to ninety-four sections, in a honey-flow of little more than three weeks' duration.

Now as to $4\frac{3}{4}$-inch deep sections, any extractor with cages less than $9\frac{1}{2}$ inches wide will not take two at a time on each side. Then, too, even though they are close-ended, and rest on the sides of boxes no deeper than section crates, they still occupy the same depth in the hive—rather more than 5 (five) inches if a bee-space is allowed for, a consideration when you come to tier them, with lifts made of ordinary 9-inch plank.

One wants to stow them away for the winter, whatever their summer use may be: and there is economy in being able to pack two deep in 9-inch boxes; and this the $4\frac{1}{4}$-inch deep are capable of, but not the $4\frac{3}{4}$-inch.—MATTHEW H. READ, *Clonoughlis, Straffan Station.*

PECULIAR ACTION OF WORKERS.

All bee-keepers have noticed the bees at times 'pawing' with apparently much industry on the alighting-board. It occurred to me that they might be trying to clean off the dirt which accumulates in front of the entrance; and smoking the 'pawers' in, I washed the black accumulation off with salt and water until the colonies had a white, clean porch in front of their door, when the scraping ceased. I think the industrious, tidy things, not finding much to do in the fields, employ themselves in trying to scrub off their front porches.—E. E. EWING.—*American Bee Journal.*

Queries and Replies.

QUERY.—During the first week of December, on looking round my beehive, I picked up a dead queen. I have carefully watched the hive since and find there is a nice lot of bees, and I wish to ask your readers what steps I ought to take, viz., buy a new queen or put the bees along with another stock.—C. A. CHEESMAN.

REPLY.—You do not say if there is proof that the hive is queenless. If so, we should prefer to unite.

QUERY.—A neighbour bee-keeper and I have agreed to lay before you the following dispute. A top swarm, when it swarms again the same season (I never had one), is called a virgin swarm. Now, my friend says it is a virgin queen that comes with the swarm. I say 'No: it is the same queen that came off with the first swarm.' I may say his reasons are, a virgin swarm does no good, and has no brood at end of season here (only heather crop). I agree with that, because the queen is exhausted for that season, seeing she has filled two hives with brood. Now, if a virgin queen came off there would be plenty of drones flying and she could be mated. I hope you see where the question is, What queen comes off with the so-called virgin swarm? Your reply in next number will oblige.—G. W.

REPLY.—Following the usual course, the first swarm of a season would be headed by the old queen, *i.e.*, the mother queen. If it should happen that this swarm headed by the old queen swarms again, then of course it would be the old queen who would again lead off the swarm from the swarm, unless she has been replaced by a young one. The queen at the head of the colony is the one that leads off the swarm, be it first or second. Such swarms have not the same chance of doing well as first swarms (except by giving extra attention to them), partly on account of the later period of the year, also on account of the fewer numbers of bees as compared with those coming off with a first swarm.

QUERY.—When is the proper time to commence spring feeding to increase stocks? How many holes of a regulating feeder should be open? Should artificial pollen be supplied at the same time, and what ought it to be mixed with? Is it an advantage to give swarms a frame of brood? —K. M. PUGHE.

REPLY.—The exact time to commence spring feeding is determined by the weather. Bees *must* be flying freely during the time they are being fed on syrup. Not more than one or two holes should be open. Artificial pollen (pea-flour) may be given so long as the bees will take it. Mix it with shavings, chaff, or sawdust, and set it in a warm corner. So soon as the bees can get a fair supply of natural pollen they will neglect the pea-flour. A frame of *hatching* brood is an advantage to a newly hived swarm.

QUERY. — I have put a coat of priming (red lead and boiled oil) on my hives before painting. Is this likely to be injurious to the bees? Is the sugar called 'Lyell's white pieces' *cane* sugar, and suitable for feeding bees? Which is the best wood to use for hive-making—*deal* or *pine*, and *white* or *yellow?* Are all kinds of nails suitable for hive-making, or are some better than others? Is it of much consequence that hives should be painted *white?* Is it necessary to use dividers with *slots* with *four-way* sections? Is using putty for filling up cracks, &c., likely to be injurious? — E. KENT.

REPLY.—The priming used will not hurt the bees. Can you send a small sample of the sugar? We prefer yellow pine. Oval wire nails are the best, they have small heads. White or light stone-colour is considered most suitable, as it does not absorb the heat so much as a darker colour. If you do not use slotted dividers with four-way sections, you do not get the full benefit of the four-way style. Putty will not hurt, but if outside cover it well with the paint.

QUERY.—Being an old subscriber to the *British Bee Journal*, I should be very much obliged if you would kindly answer me the following queries. 1. By what means is the broad red clover fertilised? Is it by bumble-bees? 2. Do bees really get much honey from the lime-trees? We have hundreds close to here in Althorp Park (Lord Spencer's), and I have carefully watched them, and my own lime-trees too, with a field-glass, and have come to the conclusion that it is quite the exception for the honey-bee to work them. These trees are frequented by thousands of what the old men call the 'wild bee.' Perhaps the reason may be that the white clover in this district is at its best just at the time the lime comes out. All the old men who work in Althorp Park—and there are one or two bee-keepers amongst them—confirm me in the little use the common bee seems to make of the lime. 3. I was giving a simple lecture on bees here last week, illustrated by Cheshire's diagrams, and two of the old skeppists asked me what the bees got from farmyard or other manure when it was being removed or moved, as the bees sometimes seem to work it very much. I have noticed this too, but I am afraid I could give them no answer. Is it the smell that attracts them, or do they really get any food for the young bees from it?—A. L. Y. M.

REPLY.—1. Yes. 2. In some places and seasons bees get large quantities of honey from lime-trees. Probably, with you, white clover being in full bloom at the time has a greater attraction than the limes. In some places lime blossoms are the principal honey resource of bees. In some districts we know limes yield very little honey. 3. Their object is to get the saline ingredients. Bees should be supplied with salt in the water given to them near home, and all liquid food should have a small quantity of salt introduced.

QUERY.—1. If the combs taken away last autumn, and intended to be given back to the bees this spring, have the pollen-cells, or some of them, overgrown with mould, will it do to give them back in that state? 2. If not, will the best way of clearing them be to soak them well, and then put them through the extractor? 3. They have been kept through the winter in a dry room. Is it possible for combs to be kept through the winter without the pollen growing mouldy? I am glad to say my stocks are all right, and have been hard at work on the crocus and wallflower the last fortnight.—RAW HAND.

REPLY.—1. No; it will not do to return the combs in a mouldy condition. 2. Your best plan is to soak the combs in salicylic acid solution (No. 1, *Guide-book*), and then thoroughly dry them in the sun, if possible. They can also be sprayed with the same solution if not very bad. The salicylic acid destroys the spores of moulds. 3. If the combs are thoroughly well sprayed with salicylic acid solution before they are stored away, mould will not grow on pollen.

QUERY.—Some of my spare combs are slightly infested with wax-moth. I thought I would spray them with very weak diluted carbolic acid, and store away again; then, before use, dip for a moment in warm water, and pass through extractor. Is this the right thing to do, and is there any danger of acid preventing bees taking to them again, or contaminating honey stored in them? Some few are also stored with pollen through a queen by accident being put over excluder, and as I wish to use these for extracting combs, is there any way of getting pollen out, or would bees remove same (if placed over excluder) before storing honey in them?—W. W. LEY.

REPLY.—The best way to get rid of wax-moth is to fumigate with brimstone. Place all the combs affected into a hive, which you can put over a couple of empty ones. Put some powdered brimstone, about a teaspoonful, into a tin saucer or an old meat tin. Set fire to the brimstone, and put it under combs. Cover the frames over on the top with a quilt, and put a board over it. The burning brimstone fumes will destroy not only the moth larvæ, but also the vitality of the eggs. To get rid of the pollen you had better use the combs in brood-nest. If bees can get pollen without any difficulty, they will hardly carry down what they have in supers, although we have known them to do so sometimes.

QUERY.—A friend of mine called me in to look at a hive to-day in which he introduced a Carniolan queen last autumn; they were a lot of driven bees supplied with sealed combs. I found them very weak—about half a pint of bees, five pounds of sealed stores. They had seven frames, three of which I removed, being empty of honey, and closed them up. There was a circle of brood about three inches in diameter on each comb. The bottom of the hive was covered with dead bees, which I removed. The queen looked healthy and lively. He has three more hives, but the combs are on bars. The hive and combs are clean, no sign of disease; the brood white and bright, and floating in food. I have wrapped them up warm, closing the entrance to three-quarters of an inch. Will you kindly tell me how best to preserve the queen? The owner has given me leave to treat them as I like.—MID-LINCOLN.

REPLY.—With care you ought to bring round this hive, especially as the bees are now rearing brood. Keep them warm and do not add any more combs until the bees fill all the space they now have. You do not say if the four combs you have left have brood on them. If they have, remove those containing none and close up with division-boards. Later you can strengthen them by giving them combs of hatching brood from other hives.

QUERY.—I have three bar-frame hives, and I looked at them on the 14th March and found them all very strong, with plenty of stores; but I think two of them are queenless, as I could find no brood. Which would be the best way to re-queen two hives from one, as I do not mean to buy any queens?—PRIMROSE.

REPLY.—We hope on your making a further examination you will find the queens, as it is too soon to begin queen-rearing, and no good until drones begin to appear. The best way to do it then will be to remove the queen, and introduce her to one of the queenless stocks, and also take all combs containing unsealed larvæ (giving them to the same stock), leaving only eggs from which the bees will rear queens. Examine the combs eight or nine days after and cut out all queen-cells but one, using one other to form a nucleus, which can then be united with the other queenless lot when the queen has become fecundated. If your bees are really queenless we doubt if they will be strong enough by the time your queens become fertile to be of much use. In such a case we would unite the two queenless stocks and give them the queen, and allow the stock to rear a fresh one.

TO PREVENT ROBBING.

Mr. J. Halter, after trying the usual methods to stop it, when, owing to extracting, robbing had been going on rather extensively, and these remedies failed, succeeded in putting an end to it in a very simple manner. He placed a piece of window-glass, about 8×5 inches, in front of the flight-hole, the top resting against the hive, and the lower end about $1\frac{1}{4}$ inches from the entrance, so as to enable the bees of the hive to go in and out at the sides. The next morning the robbers made an attack on the hive in great numbers, but going straight at the entrance were stopped by the glass. They swarmed in front of the glass, but could not find the entrance at the sides, and very soon returned in disgust. To effectually put a stop to further robbing, the glass should be allowed to remain for several days, until the robbers forget the spot.—*American Bee Journal.*

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

ARTHUR FRITH.—The sample is thin, and does not seem properly boiled, but will do for spring feeding. It should not run out if the feeding-bottle is level. We should recommend you to boil it up and add some salt and vinegar (see *Guide-book*, p. 161). The comb sent is all right. The bees will use up the granulated honey as they collect water.

G. S.—No. 17 is hybrid; the others appear pure. Too soon to raise queens yet. Watch 'Useful Hints' for instruction at the proper time. If the bees are strong and in good condition, the price for the lot is fair. Three miles is too far to depend upon a harvest from heather; better take the bees to it.

W. WRIGHT.—Appears to be *Bacillus Gaytonii*. The affected bees will probably die off. Feed with salicylicated syrup. If they do not improve in a few weeks, send piece of brood and a few live bees, and we will make an examination.

V.—You can use the excluder zinc direct on the frames, and the bee-space under the racks will provide all that is necessary. Some make a frame of wood 1½ in. wide by ¼ in. thick, and nail the excluder on this. In this case a piece same width should be nailed across the middle to support the zinc. To make a neat job of it, the zinc could be sunk into the wood flush with the top.

H. WILCOX.—You can sow borage now, in any waste places. It has a flower of a very pretty blue colour.

A BEGINNER.—The best time to purchase and move a stock of bees is about the second or third week in April, according to the weather. If necessary, they should be feed on syrup through the hole in the top.

C. B.—The sugar sent is raw cane sugar, but will not do for dry feeding, as the bees refuse to take it. Porto Rico or Demerara is the best for this purpose.

W. TIERCE.—As foul brood is prevalent in your district, you should feed your bees on syrup, to which salicylic acid solution should be added as a preventive (see p. 161, *Guide-book* for recipe).

INQUIRER.—If the hive has not lost many bees leave it where it is, and strengthen it later by giving frames of hatching brood. If the loss has been great, it can change places with a very strong stock, but this is better done later in the season, when bees are gathering.

DURHAM.—There does not appear to be any sign of foul brood. The comb you send contains pollen only. Probably your colony was not strong in numbers in the autumn, and dwindled through the winter. You can do nothing with a few bees, and have done right to destroy them.

Echoes from the Hives.

Fairspeir, Ascott-sub-Wychwood, Oxford, March 14th, 1890.—I left my twelve stocks of bees with 20 lbs. each of stores to go through the winter. On Saturday, 25th February, being sunny and warm, I just lifted the quilts and found each stock alive. But on March 5th, taking advantage of a mild morning, I looked through them, and found one stock queenless and another lot dead, with not an ounce of stores left. As the others had from 5 lbs. to 8 lbs. of stores left, I concluded it had possibly been a case of robbing. The queenless lot I had a lot of bother with at the latter part of last season. They would persist in losing their queen somehow; but I left them with one 'in full lay' on September 21st, so can't imagine where she has 'made tracks to.' I made some first-rate candy (my first) from a recipe in the *Bee Journal*, and am giving some to all, until the weather is temperate enough to begin stimulating. My best hive gave 129 lbs. honey-comb last year. I only hope it will do the same again.—APIARIST.

Louth, Lincolnshire.—The season in this district is in every respect a promising one. During this month we have had about ten days of fine sunny weather, in which the bees have been carrying in pollen and water in abundance, and bee-keepers have had an opportunity of examining their stocks and taking out any spare frames. I have examined several stocks in this neighbourhood, and, with one or two exceptions, have found them stronger in bees than for years past, and with large patches of brood; and now that the Louth Bee-keepers' Association is reorganized, with a first-class Secretary in Mr. J. H. Houghton, F.R.G.S., Mr. C. M. Nesbitt, Treasurer, and a lot of gentlemen upon the Committee in whom we have every confidence, it is to be hoped that membership during this year will largely increase. The report for the past year is in the hands of the printer, and will be duly forwarded to the members and to any wishing to join the Association by applying to the Secretary.—H. O. SMITH.

Norwood.—Bees here doing well. Wednesday being a fine warm day I examined four stocks, found brood on two or three combs, queen laying fast. I expect they will be strong and ready for the fruit-blossoms in May.—G. S. S.

*** *Several letters, interesting items, Association Reports, and Replies to Selected Queries are unavoidably held over till our next, owing to the pressure on our space.*—ED.

THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

No. 406. Vol. XVIII. N.S. 14.] APRIL 3, 1890. [*Published Weekly.*

Editorial, Notices, &c.

USEFUL HINTS.

Weather.—This subject, of perpetual interest all the year round, still merits a word or two in its relation to bee-keeping. As usual in spring, we have been enjoying (?) some of the numerous 'samples' which, according to our American cousins, constitute our climate. Occasional bright days have tempted the bees abroad, and some amount of pollen, if not much honey, has been secured by them. Breeding is probably now in full force in all strong stocks, and has been stimulated by the cheering sunshine to which we have referred. But then we have also had cold winds and dull, rainy days, when the workers have been confined to the hives. This is of little consequence where plenteous stores still exist. But there is a danger of much loss in badly provisioned stocks. These will need attention, and careful, *slow* feeding. Syrup made according to directions in 'Useful Hints,' in the *British Bee Journal* for March 20th, may now safely be supplied to needy stocks. It is best given *warm* (not *hot*), and at late evening. None of the liquid must be spilt near the hives, and all opportunity for bees from other stocks getting at the necks of the feeding-bottles must be prevented. Any carelessness in these matters will be likely to set up robbing, with all its attendant troubles.

Spring Stimulation.—In addition to the necessary administration of food to stocks near starvation-point, the time approaches when others, even fairly provided with stores, may with advantage be helped by syrup. It is surprising how rapidly brood is raised in spring when a small but regular flow of food is given in addition to what can be obtained by the bees themselves. However favourable the weather, we must remember that the hours of night are, of course, valueless for outside collection of nourishment. The feeding-bottle makes every hour of the twenty-four in each day available for keeping up the quantity of food required by the growing larvæ. Novices—and we are writing for them—may ask, 'Why not give as much syrup as in autumn—in fact, as much as the bees like to take?' The answer is twofold. First, if an unlimited amount is allowed the workers will fill up with it many cells which would otherwise, and to much greater advantage, be occupied by eggs and brood. Thus the stock will be rendered stationary, or even seriously lessened, when it ought to be most rapidly increasing. Secondly, in order to accommodate a great abundance of sweets, drone comb will very likely be made to fill up all vacancies in the combs, as that holds more to the cubic inch than worker comb. In this way a double evil is induced; for the space for worker brood will be diminished, and, later on, a superabundance of useless drones will be reared throughout the best weeks of the honey harvest. For these reasons not more than a gill of syrup per day should be allowed to any one stock. In other words, two, or at most three, holes of the feeder may be open.

Flower-planting for Bees—Though we have not much faith in the growing on a small scale of flowers visited by bees, yet in gardens of a fair size a judicious distribution of certain plants may be both picturesque and useful. Wallflowers throughout the spring are very attractive to bees. Later on, mignonette yields a perpetual feast to them. The old-fashioned borage is one of their chief favourites. *Limnanthes Douglasii*, is making a name for itself as a honey-yielding plant, and the early flowering *Arabis* is useful in like manner. But the kitchen and fruit gardens may be really serviceable to the hives, and will, in return, derive great benefit from the bees. Almost all of our fruit-blossoms secrete large quantities of nectar, and many of our vegetables do so too, when let run to flower. In planting trees for ornamental purposes the lime should not be forgotten by apiarians, as its honey-producing qualities are great. Alas! that its aphis-rearing powers are, in certain years, equally great. It is not often necessary to utter warning against planting particular flowers or shrubs. There seems, however, reason to believe that the so-called yellow jasmine (*Gelsemium vireus*), though very attractive to the eye in early spring, is a snare to the bees. The nectar from it is said to be poisonous, or at all events intoxicating and disabling to the young ones. It is not known to induce ill effects in human beings.

Enlisting New Bee-keepers.—This paragraph is intended for the experienced bee-master as well as the beginner in apiculture. Now is the time to interest in our favourite hobby those who are likely to take it up perseveringly and successfully. We recommend that persons of intelligence, who seem possessed of the qualities needed to make good apiarians, should be invited to see manipulations at the hives, should

be talked to about the pleasures of bee-keeping, should be occasionally gratified by the present of a section or two, or a bottle of clear extracted honey. Then the promise of advice and help will often prove the deciding-point where an inclination has been aroused to possess one or two stocks. We would also urge all members of County Associations to get bee-keepers to join those institutions. By combination many advantages, both public and private, will be secured, and the science and art of apiculture will be fostered and developed. A third point, worthy of consideration in many parts of the country, is the getting up of bee-shows during the coming summer. Many an exhibition of fruit and flowers would have its attractiveness enhanced by affiliating to it a display of bees, their produce, and the apparatus connected with their management, while the existence of a Horticultural Association affords the best opportunity for an apicultural show. Half a dozen, or even half that number, of energetic men would ensure the success of such an exhibition—'weather permitting,' alas! be it said.

HONEY REMEDY FOR COLD AND COUGH.—Our treacherous spring weather is apt to affect us unpleasantly in the respiratory passages. Bee-keepers, in such cases, will be wise if they turn to good account the produce of their hives. The following recipe affords an excellent remedy for coughs and colds:—Boil two ounces of linseed in a quart of water until the seeds are quite soft. Strain, and add half pint of honey, two ounces of lump sugar, and the juice of three lemons. Boil these well together. Take a teaspoonful every half-hour, or two tablespoonfuls on going to bed. It is most effective hot.

AFTER-SWARMS.

After-swarms, commonly known as 'casts,' usually come forth between the eighth and fifteenth days after first swarm has issued, but they are not subject to any rule as to the number of them, the date of their appearing, the time of day when they will swarm out, or the condition of the weather when they swarm. In number they may be one only or they may be six (or more), although they seldom exceed four; in precarious weather they may issue in from five to six days after the first swarm; they may come at any time in the forenoon or in the afternoon, and it may be in rain or a hailstorm.

It may be set down as 'a rule' that, prior to the issue of a first swarm, a number of queen-cells will be in course of building, and these will, when matured, produce a number of young queens, amongst whom, or some of them, there will be great rivalry, and, as generally accepted, a war of extermination.*

That certain of the young queens, however, manage to survive, one to remain as mistress of the hive, and one or more to lead off after-swarms, is matter of everyday knowledge with bee-keepers, and it chiefly concerns us now to recognise the fact, and to note, in an instance taken at random, the after-swarm's mode of procedure when placed in a hive, as suggested in my previous paper.

An after-swarm or cast usually leaves a hive reeking with drones and drone odour, and is generally accompanied by a goodly number of them, so cannot be in a condition demanding drones or drone comb; and as, according to Mr. Webster, the young queens rarely remain unmated for more than a few hours, the want (?) cannot often be a serious one. Mr. Webster may be right, occasionally, as to the time of fertilisation of young queens, but in a very large experience I have never (to my recollection) seen a young queen bearing the sign of fertilisation under forty-eight hours from the time of swarming; and who can tell with what intense anxiety the event was looked for in the early days of Ligurian queen-breeding? After-swarms from pure Ligurian mothers were carefully watched in those days, and the hives searched many times daily for young queens of the coveted breed, not one of which was willingly left to its fate, but rather became the subject of careful experiment. Ligurian queens were properly called golden queens in those days, as lightening purses would testify.

But while digressing, our swarm has been hived and is on its stand, and being composed of nearly, if not quite, all young bees, it is full of vigour and vivacity, and fully alive to the necessity for carefully protecting its individuality. The queen, so far from becoming fertile within a few hours, as asserted by Mr. Webster, does not leave her followers on any pretence until her sole sovereignty has been fully recognised and established; and common sense (if common sense knew aught of the subject) would say that she had plenty to otherwise engage her most earnest attention for the time being. Imagine Joan of Arc making love in a coat of mail! I dare not

* It may be well to say here that what I have witnessed in hives at the time of after-swarming has led me to the conclusion that young queens do not wage war against each other in the sanguinary method attributed to queens generally. That queens are impatient of each other's presence, and that fertile queens will fight like gladiators, I am well convinced; but with young ones the case is somewhat different, and I feel confident that, if they had opportunity of escaping, many of them would run away rather than fight. That fighting takes place is evidenced by the number of dead young queens found lying 'without the camp,' but it is not absolutely certain that their deaths have been caused in all cases by a stab from a sister-queen. At after-swarming time I have frequently seen young queens rushing about apparently under the influence of fear, and doing their best to avoid each other, which proved to my entire satisfaction that they are not all equally fightable, and has led to the idea that the desire to '*live to fight another day*' may be a wise dispensation to provide for after-swarming, for it is certain that if queens, both young and old, had the same fierce hostility to each other, there would be no after-swarms at all, as there would be but one survivor to succeed the original queen-mother.—C. N. A.

say that such an event is impossible with bees, for, in the case of those of Syrian race, the wonderful force of their vitality, villainously exemplified in their power and propensity for stinging, renders them capable of 'anything,' but Syrians are (uncivilised, and) not in the category of desirable bees.

I unwittingly said in a former paper that casts always commence building at the side of a hive; but there may be exceptions, as when the hive is of a capacity that they can fill, or when it has a crown of sugar-loaf shape. In the first instance they cannot congregate on one side only, and in the second, because the *centre* is the warmest part, and in both instances they will be more than likely to begin building there. By the same rule they may congregate and begin in a corner of a square box hive without guides, particularly when, through being out of level, one corner is the highest; but the rule is for them to cluster and commence building where heat can be best economised, and to build worker comb exclusively for some days, Mr. Webster and H. Seamark (No. 102, p. 130) to the contrary, notwithstanding.

Langstroth, in his invaluable work, *The Hive and Honey-bee,* published a quarter of a century ago, wrote strongly in favour of young queens, because casts, which always had such, produced worker combs almost exclusively; and he argued the importance of heading all swarms with young queens to prevent the production of drone comb as far as possible. I do not know whether he has since varied his ideas hereupon, but I satisfied myself, many years ago, that it is due to the preponderance of *young bees* in a cast that so little drone comb is built in the early stage of its existence; and it may be taken for granted that until the bees of a cast have built as much worker comb as the queen can occupy with eggs, and themselves properly protect and keep warm, no attempt will be made by them to build comb of any other kind.

Without a doubt, in apiaries where only skeps are used, and knowledge of bees has made no progress, it is often, if not generally, found that casts build more drone comb than is profitable to the bee-keeper; but that arises through the capacity of the hives being out of all proportion to the size of the cast, which, when increased by the hatching-out of young bees, contains a large number of old bees, which, when the cast issued, were young ones, and which will not have died, as the aged in a first swarm would, and these survivors will, in the case of a honey glut, be free to build drone comb, as is their pleasure in such circumstances.

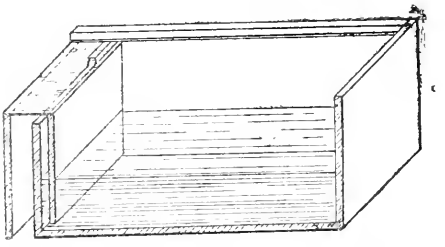
H. Seamark, herein alluded to, is one of the skep apiarist class, and admits that he put his cast of last year '*into a good large straw hive,*' and if his uncle always did the same, it is no wonder that he had abundance of drone comb. In common courtesy I accept his statement as to the cast building drone comb from the commencement, but I await further information as to the abnormal causes of such a very unusual proceeding. Will Mr. Seamark kindly favour us with a history of the antecedents of the cast in question?—a not unimportant point being whether it is quite certain that the bees had with them a healthy young queen.

In conclusion, I venture to hope I shall not be misunderstood if I, almost in fear and trembling, make passing allusion to the subject-matter of the letter (No. 110) which appeared in the *Journal* of March 20th. That I am grateful, indeed, to the writer for his very kind expression of opinion in my favour I gladly take this first opportunity of recording, and that I 'fully understood' the inner meaning of our esteemed and able Editor's note at foot of a previous letter, my thanks to him on p. 123 were fully intended to convey. I touched very gently on the accidental cause of the episode which brought out our Editor's remarks on p. 143, for I thought I recognised the writing of a dear, valued friend whose hand is now cold in death, and I felt that it would be better to correct Mr. Webster's erroneous statement rather than to enlarge on the outcome of a moment's weakness, and of which I knew instinctively that our Editor had no cognisance.—C. N. ABBOTT, *Southall, March 22nd,* 1890.

New Inventions.

STOTHARD'S NEW RAPID FEEDER.

We have received from Mr. Stothard a very simple rapid feeder made of wood; but we are informed it can also be made of metal. It is a modification of the Miller feeder, and is as cheap a form as can be devised for autumn feeding. The principle is the same as that of the Canadian feeder, at half the cost. The bees come up a two-inch space to left of illustration, pass over



the division-wall, and take the syrup from the quarter-inch space provided. A strip of glass rests on inner division and outer wall to prevent bees getting out, and the middle is a quarter of an inch lower, to allow the bees to get at the syrup. The inner wall reaches within one-sixteenth of an inch of the sides, and has a long slit at the bottom, covered with perforated zinc, to allow the syrup to pass into the space. Syrup is poured into the large reservoir, and a sliding wood or glass lid is slipped into the grooves. They are made 17 × 11 outside and 4½ deep. Brown paper is placed between the joints, and the feeder is well painted to prevent leakage.

Associations.

IRISH BEE-KEEPERS' ASSOCIATION.

We have received a copy of the Annual Report of the above Association, in which the Committee allude to much useful work accomplished.

Many advantages are offered, amongst others two good cylinder extractors have been purchased for lending out to members, each to be accompanied with an uncapping knife. The safe conveyance, also, of honey to the dépôt has been facilitated by an agreement made with Messrs. Abbott, by which, under certain conditions, members can borrow for the above purpose, without payment, except for carriage, a certain number of spring crates and tins, the former specially constructed to carry $4\frac{1}{4} \times 4\frac{1}{4}$ sections with the minimum of risk, the latter suitable for extracted honey.

At the dépôt for the sale of members' honey,* by the skill and energy of the agents, Messrs. Abbott, considerable progress has been made in the amount of sales effected. In the course of last year, 5778 lbs. of honey were sold for 168*l.* 13*s.* 11*d.*, whereas for the previous year the totals were 5038 lbs. sold, and 160*l.* 11*s.* 2*d.* realised. In the amount of honey the increase last year is substantial. The total price obtained has not, it is true, risen in proportion, but this is owing to that unavoidable drawback of a good season—the depreciation in the value of honey caused by the abundance of the supply. The new sections of the season, when up to a fair standard of quality and of full size, generally fetched from 7*d.* to $8\frac{1}{2}$*d.*, but during a short period $6\frac{1}{2}$*d.* had to be accepted for them. Only 72 bottles (1 lb.) of honey were sold, in almost every instance at $8\frac{1}{2}$*d.*, but 729 lbs. of unbottled run honey were disposed of at the uniform rate of $5\frac{1}{2}$*d.*

Good use was made during the summer of the bee-tent. By means of this, with the aid of members of the Committee, who kindly consented to act as lecturers, an opportunity for acquiring the rudiments of the art of modern bee-keeping was afforded to the inhabitants of three different districts. The first course of lectures was delivered by Mr. Read at Castlebar, during 10th and 11th July, when the Assizes were drawing a large number of persons to the town; the second was given early in August by Rev. P. Kavanagh at Ashford, co. Wicklow, and the third by Mr. Gillies at Parsonstown, in connexion with the flower show on 20th and 21st August.

A conversational meeting was held in Dublin on 28th August, one of the days of the Horse Show. Mr. Read gave the members present some valuable information and practical suggestions, derived from his own experience, in a paper entitled, 'Some Lessons of the Last Two Seasons.'

When this had been discussed, Mr. Gillies took a step, which had afterwards important results, by bringing forward the question of adopting a uniform standard for judging honey. A system of marks was provisionally approved of, which was sent to the *British Bee Journal* and other papers to obtain the benefit of public criticism. Subsequently a Special Committee was formally appointed to consider the subject, and, at their recommendation, the standard for judging honey, which has already appeared in the *British Bee Journal* for 28th November, 1889, p. 493, was adopted by the Association.

* The insertion (pp. 16–21) of rules, recommendations, &c., relating to the sale of members' honey (which formerly were issued on separate circulars), forms a new feature in this Report.

Obituary.

DEATH OF REV. ALEXANDER McLAREN, M.A., D.D.

We regret much to announce the very sudden death of the Rev. Dr. McLaren, parish minister of Houston, Renfrewshire, on the 23rd ult., from an apoplectic stroke, immediately after closing the forenoon service.

The Rev. Doctor was for years an enthusiastic apiarian, an apt pupil of 'A Renfrewshire Bee-keeper,' and wrought exclusively huge Stewarton colonies, peopled with first-cross Italians, with very great success. He was thoroughly practical, and did not write much, save a series of articles on his hobby, contributed to the *Glasgow Weekly Herald* last season. For nearly thirty years he took a warm and active interest in everything appertaining to his parish, was Chairman of the Parochial Board, was of a very amiable and agreeable disposition, and consequently much esteemed and regretted by all. He died in his sixtieth year, leaving a widow and four sons to deeply deplore their loss.

Selected Queries.

[2.] *What sort of foundation should be used in sections? Would you fill them, or only give starters? If the sections are filled with sheets of foundation, should the sheets be fastened to all the four sides?*

I have used English-made natural-base foundation, and the flat-bottomed American-made, and I prefer the latter, as the bees work it out very thin, and into the natural shape, so that in eating the honey there is not so much 'fish-bone,' as they say, in the centre. I usually give full sheets, or, at least, within an eighth of an inch, at bottom and sides. I have found, when it has been put in too large, that if the section was not quite square when foundation was put in, and then the section placed in rack, it would sometimes be puckered at one corner, thus causing unevenness in the sealing up of sections.—JOHN WALTON.

1. The thinnest make of natural-base foundation, either worker cell or four and a half to the inch size of cell. 2. For commercial purposes, and when working for *prize* sections of honey, I always use full sheets in sections. Where starters are used, the comb is seldom, if ever, fixed secure enough to the section to ensure safe travelling to market. 3. The sheets are best fastened to three sides, *i.e.*, the top and two sides, and on one side of the foundation only. I always use the lightest colour of wax for fixing foundation in sections. When the sheet fits closely to the three sides, very little wax is required.—Wm. McNally.

A natural-based worker-size foundation, the septum of which, when held to the light, is almost transparent. Full sheets of such foundation I prefer to starters, but give the starters a preference when heavy foundation of bleached wax is used. All four sides should be fastened, or used in a section, which prevents displacement of the foundation; this is certain, the bees will do the fixing.—John H. Howard, *Holme, Peterborough.*

The very thinnest worker foundation that can be obtained, and of the lightest colour, but not made from bleached wax. Full sheets are far better than starters. If using the ordinary sections, the sheet of foundation should be cut slightly narrower than the inside of section, and three-eighths of an inch less in depth; it should only be fastened at top, and a piece a quarter of an inch wide should be fastened at the bottom of section. If grooved sections are used, the foundation should be cut to hang loosely in the grooves, and to hang down between the divided bottom bar, and only fastened at the top.—Wm. N. Griffin.

I prefer natural-based thin *worker* foundation. My experience is that, where honey comes in *fast*, whole sheets are a great advantage; but in a bad season like 1888 I found the bees gnawed the foundation, and made 'pop-holes' if whole sheets were used. I have used 'Lee's sections' mostly when inserting whole sheets; these were *beautifully* worked out last year *during the glut*, but in 1888, and late in 1889, they were no better filled than others, and many pop-holes made.—W. E. Burkitt.

1. Natural base or 'Pelham.' 2. If for show purposes I should fill them, as by such means you get a much handsomer-looking section. For my own consumption I prefer starters being used, as, no matter how thin the septum of the foundation, its presence can be easily detected from its toughness when eating the section. It is very unpleasant chewing pellets of wax, and afterwards arranging them in order round the edge of one's plate! 3. There is no absolute necessity to fasten it on all four sides. I much prefer its being a fixture at top and on both sides, as by these means you entirely prevent sagging, which materially militates against its appearance.—W. B. Webster.

The thinnest obtainable, flat-based, worker-sized super foundation. Fill them decidedly. Grooved sections having four bee-ways should be used.—R. A. H. Grimshaw.

1. The thinnest procurable. 2. Yes, fill them. 3. I only fix to top side of section. With Mr. Blow's grooved sections no fixing is required beyond placing the foundation in the groove, and with natural-base super foundation I have never had a sheet buckle out of place, and no pop-holes when using the slotted dividers.—W. Woodley.

Flat-bottomed, worker-cell size, and as thin as procurable. Very nearly fill the sections with sheets of foundation, and only secure at the top, allowing the foundation to hang one-sixteenth of an inch clear of the section upon the two sides, and one-eighth of an inch clear at the bottom.—H. Wood, *Lichfield.*

[3.] *Will you say, of your own knowledge, in what cases honey (or stings) have proved beneficial as remedies?*

While in no way predisposed to attach much value to the use of honey as a remedy, I may mention a recent case wherein I can speak with direct knowledge of the facts. A gentleman afflicted with some affection of the kidneys was ordered by his medical adviser to abstain entirely from the use of sugar in his food. Being naturally fond of sweets and accustomed to using sugar freely, it was an almost intolerable hardship to give up its use; he could not relish his food, and, matters becoming serious, he again consulted his doctor, with the result that he was allowed to use *pure honey* in lieu of sugar. During the last four or five months he has consumed between twenty and thirty pounds of my own honey, and now declares that not only does he take kindly to the substitute for sugar, but believes that he is considerably benefited in health by the use of honey, and has offered to testify to the facts above.

Last autumn a person came a long distance to obtain *pure honey* for use in some trouble of the eyes, which threatened injury to the sight, and on my inquiring later if any good effect was visible, the lady declared that 'very great benefit had resulted.'—W. B. Carr.

I have never yet met with a case in which stings have proved any benefit as remedies. The use of honey as a remedy for throat complaints is very general indeed in this district, and, in combination with other things, is undoubtedly a success.—T. B. Blow.

1. Strong sage tea, with honey and a pinch of alum, is an excellent gargle for sore throats. 2. Hot rum and water, sweetened with honey, taken on going to bed, is the best thing for a cold, or symptoms of influenza. 3. Honey rubbed over the hands after washing, *and before wiping*, will quickly cure chapped hands. 4. Hardly to be called a *remedy*, but very good. Mix honey and bread-crumbs, flavour with juice and peel of a lemon, and use instead of jam for open tarts or 'rolly-poly pudding.'

Having had some forty or fifty bee-stings on my hands and arms in the course of a few

minutes, *when suffering from rheumatism in my shoulder*, I felt NO benefit, but have never *applied* them to the parts affected, so cannot say more. My mother will not let me experiment *on her*. —W. E. BURKITT.

I am not able to refer to any particular cases in which honey has to my own knowledge been used alone as a remedy except for cough, cold, or asthma, in each of which disorders it is used largely hereabout with success. Stings are seldom courted as remedies, and I cannot call to mind any, except cases reported to me when I occupied the editorial chair. Nevertheless, I am satisfied that I owe my almost perfect immunity from stings and bites of other insects, to my thorough inoculation with bee-poison.—C. N. ABBOTT.

Honey: The regular use as an article of diet, in place of butter, as a cure for dyspepsia; the regular use as an article of diet to prevent the formation of urates in kidney diseases; mixed with lemon juice, as a cough tincture; mixed with borax, to assist dentition in children; on going to bed and rising, as a cure for bronchitis and asthma. Stings: As a cure for chronic rheumatism, lumbago, and sciatica, by preventing the formation of lactic acid.—R. A. H. GRIMSHAW.

Honey has been of great service in my own family in cases of cold, sore throats, and bronchial affections. I have also known of dozens of similar effects in other families where it has been used. My own experience *re* stings has been as follows:—Before keeping bees upon a large scale I was subject to rheumatism in the shoulders, but since doing so I have never felt it. Whether this is the effect of the numerous stings I have received I cannot say, but it seems somewhat like it, after hearing of several cures from the subcutaneous injections of what the homœopaths call *Apis mellifica*.—W. B. WEBSTER.

Honey proved most beneficial in two cases of diphtheria which came under my notice some time ago. Two fine girls, aged respectively twelve and thirteen years, were at the point of death. The doctor told their father the fact that he could do no more for them, after hearing which he undertook the same evening to administer honey to the elder girl in small quantities, so small that he only got her to take a small teaspoonful in about twenty times offering, after which she became violently sick; he again persuaded her to take more with better success, with the same result, she was again sick, and the vomit was most obnoxious to look at. Next morning she appeared brighter, and asked for more honey, which was given to her. The father next offered the younger girl some, and the effect was the same as in the former case, and in a fortnight after they had recovered so far as to be out at play, and they are now fine young women, and the father is fully convinced that honey alone saved their lives. He was formerly a successful bee-keeper, but, living in a large town in the north, he has not the convenience to keep bees now, so gets his supply from me, as he says he will never be without so valuable a medicine in the house.—TOM SELLS.

Foreign.

FRANCE.

REVIEW OF FRENCH BEE JOURNALS BY J. DENNLER.

L'Apiculteur, No. 2, 1890.—During the last six years the following quantities of wax passed into Paris and paid duty:—White or yellow wax, in 1883, 249,084 kilos.; in 1884, 252,269 kilos.; 1885, 238,998 kilos.; 1886, 229,026 kilos.; 1887, 239,610 kilos.; 1888, 261,913 kilos. The amount of duties received by the Paris octroi in 1888 was 99,503 francs 46 cents. By a decree made the 28th of July, 1874, white wax, which was taxed at 33 francs 60 cents, and yellow at 22 francs 80 cents, were both submitted to a uniform tax of 42 francs.

No. 3.—In consequence of the purchase of the *Apiculteur* by the Central Society of Insectology, it becomes the official organ of this society; and the *Bulletin de l'Insectologie* is added to the *Apiculteur*, commencing at No. 3. News has reached the Ministers of Commerce and Colonial Industries that an International Exhibition will be held at Kingston, Jamaica, on the 21st of January, 1891.

Bulletin de la Société de la Somme. Fifteenth year, Vol. IV., No. 77, 1889.—A Picardian student writes in a letter: 'From long and careful study, I am of the firm conviction that reproduction amongst oviparous animals is not always uniform, although, generally speaking, it appears to be so. Amongst insects, exceptions are numerous, such as aphides, ants, bees, &c. In the case of aphides, for instance, the greatest mysteries occur, far more astonishing than parthenogenesis in bees. In the autumn eggs are laid by a female after reaching maturity. In the spring these eggs hatch, and produce absolutely and exclusively nothing but females, which henceforth are incapable of fertilisation. These females do not lay; they are not oviparous; they bring forth young, which, like themselves, are viviparous females. In this manner ten generations succeed one another; but at the last both males and females appear, pairing takes place, and the females lay eggs, and are oviparous. Who can explain these facts? How can these ten generations be produced without pairing, without fecundation, and how is it that they are viviparous, having been produced by oviparous insects? Why were there no males during the nine generations, and how is it they appear only at the tenth?'

In July, 1797, as a Mr. Wright, of St. Faith's, Norwich, was walking in his garden, a flight of bees alighted on his head and entirely covered his hair, till they made an appearance like a judge's wig. Mr. W. stood for upwards of two hours in this situation while the customary means were used for hiving them, which was completely done without his receiving any injury. Mr. Wright had expressed a strong wish that a flight of bees might come on his premises.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements*).

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

CHIPS.

[127.] A CHEAP BEE-VEIL.—The most comfortable bee-veil for steady use is undoubtedly the woven wire kind, for it hinders the sight less and is cooler than muslin. I usually have one or two of the former about somewhere handy, but when sitting near the hives, as I often do in summer-time (how far off it seems just now!), or working among the bees in their gentler moods, I like a veil that can be gathered up clear from the face, and rested upon the brim of the straw hat. Then, if Mr. Angry Bee comes along (and one gets to know almost instinctively from the buzz whether his intentions are serious), the veil drops with a touch, and one can smile at the outside efforts. These veils are made of coarse black muslin at 2¾*d.* per yard—that quantity making a couple. These are just stitched up the back, and a string run in and out of the muslin near the selvedge to tie over the hat, the whole veil costing under 1½*d.* It is curious that among the many bees I, and those I know of, have managed to get inside our veils, not one has stung. The bees seem to get frightened, and buzz away trying to get out again.

It is amusing to watch the proceedings of a business bee when it takes the idea into its head that you are a superfluous ornament in your own garden. It makes frantic dabs at the veil, and finally retires to its hive when it is tired out, and you are getting cross and hot. About five minutes later, having had a 'modest quencher' at the nearest cell, back it comes again, and says, in buzzy language, 'Hullo! I thought I told you to get out of this. Now go, will you?' and the bee-keeper usually gets tired out first, and has to settle that bee or vacate. It is not well to be too timid, like an old gentleman I heard of, who, having taken up the dangerous pursuit, likes to be *armour-clad*:—

Old gentleman (*to his gardener.*)—'Have you lighted the new Jones double-barrelled champion giant smoker?'

Gardener.—'Yes, sir. It's working splendidly, and making quite a fog out in the back garden.'

Old gent.—'Have you got the pail of carbolic and syringe ready in case the bees get angry?'

Gardener.—'I've mixed it pretty strong, sir. The neighbours are asking what's the matter, and if we are going to have our drains seen to?'

Old gent.—'Well, just buckle up my tin-lined suit, and screw on my treble-wove steel wire bee-veil; then I think we may venture to try and get that section off!!'

Whether he got it off or not I don't know, but timidity grows upon you after a time. By-the-by, talking of growing upon one, reminds me of—

Jones, who has been at his bees again, and had two good ones on the nose, meets a friend, and asks, 'I say, old fellow, does my face look all right?'

Friend: 'Well, you are not naturally handsome, but it's a sort of face that grows upon you.'

N.B.—It did—grew very much like a pumpkin half an hour after.

EXCLUDER ZINC.—When writing last, expressing my opinion in favour of using excluder zinc (I am fitting it to all my hives worked for extracted honey, and not previously so fitted), it was in spite of the total failure in the only four cases in which I tried it last year for *queen-sifting*, rather than queen-excluding. In each of these cases the queen and all the bees were safely housed below excluder zinc, the zinc resting flat on the top of broodless frames; the brood frames, after being cleared of bees, were placed above. Doubtless the brood proved too great an attraction, and the queen in each of the four cases was carried up with the rush, and stayed there contentedly enough.

That makes me doubt the efficacy of the system of transferring sometimes recommended—that of driving the bees from a skep, and placing it above excluder over a bar-frame hive for the bees to hatch out.

But, after all, I have never had a queen pass an excluding divider in the body-box, nor pass a framed excluder above the brood-nest when the usual bee-space was allowed between the zinc and top of frames; so I feel a sufficient amount of confidence to extend the use to another dozen or so of hives this year. Frames worked over excluder last year were less than half the trouble to extract and uncap, so straight and clean were they compared to those from hives in which the queen had the range of forty frames. I always give some nice worked-out comb above the excluder to tempt the bees up, and am saving about 200 combs for that purpose from last year. Any combs beyond that number they may want for surplus storing I propose letting them build for themselves. I am getting tired of always buying, buying foundation, and if there should be a good flow of honey I can afford to let them use some in making wax; but if it be a bad season they will have plenty ready built out to store in. Then, again, the job I most dislike is extracting the wax from dirty, pollen-clogged combs, whereas melting up clean comb is a pleasure both for the ease of the operation and beauty of the result.

I intended, when I began, to write on the *l. s. d.* of bee-keeping, but must reserve the question until another occasion.—HONEYSUCKLE.

HOUSE APIARIES AND A NEW DEPARTURE.

[128.] My bee-house is heated by hot-water pipes. I must refer back to my former letters (No. 50, page 80, and No. 109, page 142); without these my description cannot be understood completely. I, as a German, am not trying to introduce a new thing in a foreign country; I am only carrying out the Rev. Mr. Weygand's teachings, which are well understood by our editor's remarks, page 142. The second volume of Weygand's book (pages 58 to 61) gives a representation of my house and full description, with particulars. I should not be surprised, if for the present, but not for long, I—an amateur gardener and bee-keeper on a large scale—have the only one of its kind in England; but in neither hobby have I ever sold the accumulating surplus, but give away all I have to spare. With this waste, as it may appear, I am economising where I can; so with this bee-house, which will be cheap in the end and an improvement in wintering. No more dead colonies in spring! How many do we see now all over the country? At an auction sale this week, of a once large bee company, not a live bee in any of the hundreds of empty hives. Not warm enough! is the Rev. Mr. Weygand's answer. We are trying to winter summer birds in a damp climate. They want dry, desert air, not snow and icicles. We can never acclimatise our summer birds by force, when for seven months of cold weather they gorge themselves unnaturally, to keep body and life together. Unable to relieve themselves of those stinking fæces, which cause all diseases, the hive walls inside running with dampness in the warmest and best of hives, like windows steaming in a cold room from condensation, they are unnaturally placed, and die by thousands.

In the new departure principle, every stock with a queen *must* winter. No more losses in spring. In those dangerous months of March and April hives are strong, bees abundant, *if fed well* in January and February, March and April, and *kept warm;* yes, hot! 55° in winter is Nature's advice, and 75° to 85° at brood-raising time. Every late cast in August, say on the moors, as sometimes happens, need not be wasted by uniting and sacrificing a young queen, so valuable in spring. Wintering two stocks in a hive, giving two entrances, is now child's play; and what is its value in spring?

My bee-house is 10 ft. long by 5 ft. wide; it has three shelves far enough apart to allow tiering up. Upon these stand my hives, all without floor-boards and without covers. Under each hive a 6-in. square piece is cut out of the shelf, and this is held in position by buttons underneath; the hole is covered by perforated zinc. When the hot water is on, the heat of the house rises direct into the hives. My bees don't cluster, and in summer like to run all over the combs; they do not attempt even to fly out at 55° unless sunshine tempts them, and they are busy working, cleaning, and enjoying themselves. No *hard* work, creating unnatural warmth, to prevent death's cold, bitter through at least three winter months, if not five, or perhaps seven. Like ourselves (at least we Germans) the bees like a warm room. We do not warm the chimney-pot on the top of the roof, and shiver with cold inside for English comfort's sake! (No offence.) Gardener's fashion, I work on the cool greenhouse system, keeping frost out only until breeding begins. In April, being already then full of bees, I double my eighteen hives; the artificial swarming is done before May comes. Below the three tiers of shelves upon which the hives stand are four rows of hot-water pipes connected with my greenhouse boiler.

The 2-ft. width of house (the shelves with hives on) are additionally protected by curtains in frosty weather to concentrate the warmth upon them, and a blind is run down outside the house to protect the entrances to hives. In summer's warm weather the house opens on *almost all sides*, still leaving all in the shade.

The hives stand away from the walls of the house (the entrances through 1½-in. tunnels), the warmth acting upon them all round, and also on the top, as I have no wood covers, simply the packing on the top of the frames. The cheapness of my hives, the simple box of four sides (no top or bottom for floor-board) in which the frames hang, is really all that is required; the house answers all other purposes, and is only a deal-board structure. Mine is an improvement on the German, where they have a portable stove inside the house instead of my hot-water pipes. These houses are what the young ladies would call an 'awfully nice place' for bees to winter in. Entrances remain open, except in very severe frosty weather, and then they are closed temporarily; the perforated zinc in the floor-boards assists to let the warm air of the house into the hives. I am now (middle of March) placing drone combs right into the brood-nest to rear drones for queen-breeding in April. I have English blacks, Italian, Carniolan, Cyprians, and the black German heath bees, and want to cross all with Carniolan drones. I have had the bee-craze for over thirty years, and am only trying now and learning. Having been cured of my rheumatism, I have recommended others to be well stung, and can mention a curious fact. I found one evening a bee-sting in my forehead; it had been there seven hours. I advised my brother, who suffered from rheumatism in Germany, to try his luck with bees, and, for a joke, sent him this bee-sting. He did not take my advice, but took the sting out of the letter, placed it on the back of his hand, and —and—and—*it stung him*, after being two days in the post and seven hours in my skin, whilst I had never noticed the original sting. Do you believe it? It was certainly a strong prick—a bee-sting as he called it.—J. G. K., *Grove House, Southborough, Tunbridge Wells.*

TOM-TITS.

[129.] The enemies of the tom-tit—and they appear to be numerous, if human only, by what has appeared in the *B.B.J.* recently—have had a period of advocating wholesale destruction by gun, cat, &c. I sometimes think those who are endeavouring to make their bee-keeping a success would do well to place a hive, or rather a few hives, out in the fields, where, of course, they must be secure from common (should I say biped?) thieves, for the purpose of supporting the 'tits' and such of their feathered relatives as prefer flesh food, and dare to crave so sweet a morsel as a British bee. Surely the advocates of destruction never observed 'tits' closely when not in the *locale* of their hives; and the discharge of an old flash-in-the-pan or pistol *blank* once or twice in the day would possibly remove them to a reasonable distance, if the farmer thought or knew they were robbing him. Twenty years ago (I was then among the Cotswolds) I watched a 'tit' searching the trees in the garden and orchard at the back of the house, day after day. One morning particularly a plum-tree close to my bedroom window was the place of rendezvous, and in less than as many minutes thirty green grubs or caterpillars, as thick as the penholder I am using and about an inch and a quarter long, were searched for—not without labour, and good intent too, for its nest was in a hollow apple-tree close by, and those little tits, 'faithful copies of their noble sire' in every respect—particularly that of assisting man with the bee—were soon fledged and able to help in cleansing and saving from destruction by blight, so called, and from those multifarious insect pests which reduce and destroy crops with impunity, reducing the husbandman sometimes to bankruptcy or beggary, and causing by scarcity 'upward tendencies,' and so affecting the nation. It is observed by naturalists that the 'flocks' of birds are of smaller numbers than of yore; are we better off for it? Will the bee do duty for them in the above matters? Are they nothing worth as attraction for the human eye, as adornment, as companions harmonious, when sometimes, without them, the hum of insect life would possibly be monotonous? It is *necessary* 'to cultivate a better way of looking at these things,' and this clip I send you, which I hope you will print in he *B.B.J.*, either with or without what my own experience constrained me to write.—LES TIGRES SONT CRUELS.

A correspondent tells me that I am indirectly answerable for bringing about the recent conference of Worcestershire fruit-growers, with reference more especially to insect plagues; but it was only very indirectly, by my references to the beauty of the Broadway district, which induced a visit, in the course of which the ravages of the caterpillar were only too manifest. My correspondent writes: 'I came across a country lad, with whom I dropt into conversation and introduced the subject of bird-nesting. "Of course you rob the nests?" I said. "Yes," was the answer. "And what do you do with the eggs?" I asked. "Aye? Why, we makes necklaces on 'em." Yes, thought I, and every necklace represents thousands of caterpillars left which would otherwise be taken by the birds to support a brood. Now the birds are busy building, and every one might do something by his or her influence in sparing useful insectivorous birds. I have cleared up the tom-tit question by shooting one—which I much regretted to do—and I find exactly what I expected, that its stomach did not contain a particle of vegetable substance or fruit-buds, but only the insects and their eggs; and I am supported by other close observers.' The writer sends me, neatly and conveniently displayed, the contents of the stomach of the blue-tit and of a bullfinch. The former consists of larvæ, eggs, and one or two bits which look to me like pupa-cases: the latter is purely a vegetarian feeder, and, unfortunately, the beautiful rascal destroys a great deal more than he eats. I can hardly hope that these observations will convert those who indulge in sweeping condemnations and see no difference in birds; but I hope they will have their influence in inducing those who are engaged in horticultural pursuits to make minute and painstaking study of birds and insects. Every bird and every insect has its own habits: some of them are friendly to man and his pursuits; others are injurious. The indiscriminate slaughterer does more harm than good probably. He will involve in one common *anathema maranatha* the bullfinch, the sparrow, the tits, and the wrens—birds do mischief, and they are birds, so bang away at them. That's his syllogism. In the same way, because insects are pests, he will kill, when he gets a chance, the lace-fly, the ichneumon fly, the hoverer fly, the lady-bird, and larvæ which feed only on nettles, with as much gusto as the winter moth or the smaller ermine. May I, once again, suggest a means of cultivating a better way of looking at things? Every child is now educated, and, though probably our over-stuffed school course could not very well make room for natural history—though, as tending to sharpen the faculty of observation and the habit of reasoning, it would be as useful as any subject—why should there not be exhibited in every school in agricultural districts cases of insects, and either stuffed specimens or drawings of birds, well and clearly marked as 'friends of man' and 'enemies of man?' Such cases would be sure to attract the interest of children, who, without any set lessons, would acquire useful knowledge, be stimulated to use their eyes, and to think about what they see.

WIDE ENTRANCES.

[130.] My bees did fairly well in 1889 I had fourteen stocks, and my take averaged 30 lbs. each, besides increasing my stocks to twenty-one. About a month ago you advised bee-keepers to keep the openings of hives to full summer width. I think that is wrong, as I lost all mine once by mice getting in through leaving the openings wide. Now I always put a piece of wood, one inch shorter than the width of entrance, in the centre of it, which leaves two small holes, half-inch wide, for entrance, so that mice cannot enter, and it keeps the bees much warmer in winter, I think, than your plan of leaving them full width.—RICHARD FEW.

WHAT A COLONY OF BEES CAN DO.

[131.] It may interest 'La Grippe,' 'J. W. B.' (105), and others to learn that, although here the honey season last summer was short, I took from four hives 441 lbs. of extracted honey.

From the best I extracted 176 lbs. It was a Cowan hive, and the queen had perfect liberty, laying mostly in the first and second, but also in the centre frames of the third storey.

Now, to show what this stock accomplished in about six weeks, I must trouble you with a few details. When the bottom storey was crowded with bees, I placed upon it the second, with twelve sheets of foundation. This was soon full of bees, brood, and honey, whereupon I placed a third storey, with ten sheets of foundation. These were quickly drawn out, and full. I removed the latter, and at intervals gave three shallow boxes, ten frames in each, with strips of foundation only, all of which were rapidly drawn, and built to the bottom. Another box of shallow frames was given, drawn out, and filled with honey. With ready-built combs this stock would have given over 2 cwt. of honey. 62 combs and 176 lbs. of honey in so short a time seems to me most remarkable.

I must not withhold the fact that my employment is fruit culture, with bee-keeping; and being always in the garden, the attention which is necessary to get the best results can always be given.

The following experience convinced me of the utility of excluders. June 12th, a swarm that I had returned reissued, and just as the bees began to enter a skep, which I had placed on the ground, a swarm from another hive issued, and about the same minute a cast rushed out of a straw skep. These three lots got so completely mixed that all united. They filled the skep, and quite covered the outside, so that it was a delicate job to move them. Shaking them in front of their new hive, containing twelve sheets of foundation, there seemed to be millions of them.

First they finished off fifteen sections; then, as appeared needful, I gave them five boxes of shallow frames. As added, the queen, with the workers, took possession, so that frames had to be removed singly, and at no time could a whole box be taken. At the very top the queen seemed as busy as below, and this was the more annoying as I was using some of Lee's frames, which are far enough apart to enable the bees to build all the drone comb they like, which they did, and hundreds of them were soon hatching out. Off went an order for excluder boards, for I would have no more of this.

When I examined the bottom box the sheets of foundation were not drawn out even, and this was near the end of the season.

If an excluder had been placed directly over the hive proper, the queen would have been kept below, and much inconvenience would have been avoided. From this hive I extracted 87 lbs. of honey. We do not regard this as a particularly good district for honey, as a field of white clover is a rare sight. We rely mainly upon sainfoin and trefoil.

When I invited, with your permission, Mr. Editor, a discussion on house apiaries, I did not mean bee-houses. A bee-house I regard as one of the small places, capable of holding a few hives only, such as the one used by the late Rev. G. Raynor. A house apiary is quite another thing; a building wherein the bee-master can move about, keep from 50 to 100 stocks, store appliances, extract, manipulate, &c. Some are shown in the *A*, *B*, *C*, but where are the English bee-keepers who have tested house apiaries extensively? *Re* the house on wheels, given in *Journal* of March 20th by W. McNally, I should much like to test it, but the difficulty uppermost in my mind is that of moving it about. I should like to know how the combs are kept steady and unbroken? What are the effects of jarring over stony roads, such as we have? Nothing, in my short experience, irritates bees more than rough handling, and the jarring motion of a bee-house on wheels would have the same effect.

I might increase my honey yield enormously if I could remove a number of hives to the edge of large sainfoin fields, and many others could do the same. But we must know more on this subject before we dare venture.

You will be pleased, Mr. Editor, to learn that fruit culture and bee-keeping are likely to grow to unlimited extent down here at Methwold. A vegetarian colony is to be formed, several two-acre plots are already purchased, fruit-trees are planted, all the visitors have been to see our bees, and I hope to have the pleasure of introducing a colony into every orchard. Our apiary has been a source of never-failing interest to all visitors.

The advice to prepare is reiterated every spring. 'Send in your orders!' All very well for the gentlemen with means, but tantalising to us poor bee-keepers. Appliance dealers WILL have 'cash with order,' so they must wait the convenience of those whom they cannot trust for a month or so. We have to get what we can, and when we can. So, please, 'Mr. Useful Hints,' when you next advise, qualify it a little. —F. GOODRICH, *Methwold, Norfolk.*

[On the Continent it is quite a common practice to transport hives of bees to mountain pastures on spring trollies. The frames are secured so as to prevent the combs getting damaged by jarring. In Germany, travelling apiaries similar to illustration on page 136 of present volume are used in many places.—ED.]

EXPERIENCES.

[132.] I am much interested in your bee-paper, and shall give my experience. I commenced bee-keeping in 1888, having two very old straw skeps. From these I had two swarms and hived them on 'Economic' bar-frames from Mr. Abbott. Last June, 1889, I was given a bar-frame hive. I took from it in autumn two rows of sections (forty-two pounds). I put on another

row, but they filled so slowly I did not expect much; but quite late in the year they cheered up and *filled* them with lovely amber-coloured heather honey. I had also two swarms (June, 1889) for which I got bar-frames, and got two rows of sections from each. I had sixty-three pounds from each of my two 'Economic' hives (started in 1888) and a little heather honey in autumn. I could only get 6*d*. per pound by selling in the neighbourhood, which I did to every one who wished to buy.

I have now five bar-frames and two skeps, having caught a strong swarm last July. I am quite satisfied that my bees paid; we had such quantities of honey for our own use, and I had nearly 5*l*. in cash, which more than paid expenses. All I know I learned from Mr. Cowan's *Guide-book*, and I have never seen an expert work, nor the inside of any hives but my own. I am an old woman and only wish I had commenced sooner.—A Tipperary Woman.

[If we are right in our calculations you have obtained 252 pounds of honey from your bees. We congratulate you on your success, and hope it may be an incentive to others of the gentler sex to try and do the same. The price you got is low, and we hope when people in your neighbourhood find out how good the honey is they will be ready to give a better price for it. We shall be pleased to have your further experience.—Ed.]

LADY BEE-KEEPERS.—BEES AND FRUIT.

[133.] I commenced bee-keeping four years ago, and so far from finding any difficulty in the work, it has been a very great pleasure indeed.

I am not well situated for bee-keeping, living in a suburb of a manufacturing town in the West of Scotland, famous for its thread and its high death-rate. I knew nothing about bees except from one or two books, and was told by those who had tried bee-keeping that it was impossible to succeed in such a district—that the honey, if I got any, would be black with smoke, &c. But I was determined to try, and got a hive with a swarm about midsummer. I know now it was just when the honey-flow was over, and the poor things dwindled away till there was not one left. I was not going to be discouraged, however, and next season procured another lot which did well. I got it in the spring, and it swarmed twice (the first time on the 27th of May) and gave me 21 lbs. of fine section honey with a very decided flavour of hawthorn, of which I was very proud. I have now four hives, and do not mean to have any more, and last year I had 60 lbs. of fine section honey—very good, I think, for a smoky town.

There is no difficulty in ladies managing the whole thing. I made a very serviceable hive with no other tools than a saw, a hammer, and a few nails, and this year I have bees wintering in it very well. It is in the form of a bottomless box, made to fit the standard frames, and put into a larger box. You can lift it out without disturbing the frames, and put it into a nice clean box, and the bees will know nothing about it. Then you can draw it back from the entrance in winter, thus giving more shelter to the bees, and you can work it on Simmins' non-swarming system.

I was from home three months last summer, and left my servant in charge. She had never seen a beehive in her life, but, from the instructions I gave her, she successfully hived two good swarms and put back five others. I told her to put them back, but omitted to tell her to let them hang for awhile first. The consequence was that she had one hive swarming three times in one day; but she pluckily set to work and promptly put them back each time. She also took off full sections, replacing them with empty ones. She only had one sting all the time.

I started my sister in bee-keeping, and she is already more enthusiastic in it than I am. She is very favourably situated, and last year had 220 lbs. of the finest section honey I ever saw.

I made bee-dresses for her and myself, but we have both discarded them, and find it better not to work with the bees when they are in the mood for crawling and stinging, but to leave them alone till they are in a better temper.

I have had a garden of over half an acre for the last nineteen years. It is well stocked with fruit-bushes, principally gooseberries, and a few apple-trees. We had always a fine show of fruit in the spring, the bushes being then covered with blossom, but never a crop of fruit worth speaking of. The seedsman told me it was the spring frost that destroyed them; but the last two years—since I have had bees—the bushes and trees have been simply loaded with fruit, the branches broken down in many cases. I have been giving the bees the credit; but if I have a good crop this year again that will prove it, to my satisfaction, at least.

I spent six weeks in the Orkneys last summer, and another time may say something about my experience there.—A Lady Bee-keeper.

[It is very pleasant to have such a favourable report, especially from a lady bee-keeper. We know many places where it was supposed bees could not do, and in which they had not done on the old-fashioned plan. Large hives and strong colonies at the right time are the secret of success with modern bee-keepers. A friend of ours who was told he would never do anything in his district because nothing had ever been done before, now gets an average of 60 to 80 lbs. surplus every year. We shall be glad to hear your experiences in the Orkneys.—Ed.]

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

[134.] Allow me to say that I shall be glad to hear from 'Lincolnshire Novice' and from any others who may be interested in our Association. On receipt of a post-card containing address, I will forward report, list of subscribers, &c.—J. H. Houghton, *Hon. Sec.*, 11 *Sydenham Terrace, Louth.*

Queries and Replies.

QUERY.—I should be much obliged to you if you would tell me whether unfinished sections of last year can be advantageously used by putting them in supers this year to be finished, whether a few such in each super would not help to induce the bees to go up, and whether it would be advisable to first uncap the portions already capped, lest the old capping should show against the new, thus giving the section a patchy appearance?—G. S. GREEN.

REPLY.—We should prefer to put them behind a queen-excluder dummy early in the spring, first uncapping what is sealed. The bees would then empty them and polish them up, ready for use as soon as the honey crop comes, when they might be used in supers.

QUERY.—I have a fine stock of bees, headed with an 1889 pure Carniolan queen. Whether she was fertilised by Carniolan or black drone, I am not sufficient expert to be able to tell, but enclosed are one or two bees. All I know is that they are most extraordinary workers, and also they seem to me to be in a very forward condition, as I had a peep on the 21st inst., and found them with plenty of stores, and the two centre frames seemed comparatively full with hatching brood. Now, I want to work for extracted honey in standard frames, and I thought I could divide my stock into two after the honey-flow was over. At present they are on seven frames, in a hive capable of holding twelve or thirteen frames, with room above for another row of frames. My idea was to get them worked out into twelve frames, then put on excluder, then place another twelve frames above with full foundation. What I want to know is, what is necessary to ensure successful extraction of new combs, and if the foregoing method will secure me two stocks to go into winter quarters? I may say I am very favourably situated. At the present time we have plenty of laurestinus, apricots, wallflowers, and crocuses in bloom, and the pollen-bearers are extremely busy. Answer would oblige in *Journal*.—SALOPIAN.

REPLY.—The bees sent are crossed. Begin to stimulate your bees by gentle feeding, so as to get them strong by the time the honey-flow commences. As soon as your bees are crowded, you can put another hive on top, with excluder zinc between, and if you have some worked-out combs, use them. If not, you had better use wired foundation, as you intend the combs for extracting. You can divide your hive after the honey-harvest—say, in July—and either introduce a queen to the queenless part, or allow the bees to raise one themselves. Our method would be to raise a queen in a nucleus in readiness for the division.

In the *Colorado Farmer* we find that out of 400 bee-keepers in Colorado, 125 reported to the Association that they had produced 125,000 pounds of honey.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

JO RO LO.—About twelve days after the queen-cells are commenced. When they will be commenced no one can say. Giving plenty of room is not an infallible remedy against queen-cell building. When bees have got the swarming fever there are times when nothing will stop them. Unless your bees are in a very bad condition the queen will have commenced laying freely. We should prefer to transfer the combs that contain brood and subsequently remove them, when all the brood has hatched out, otherwise you will lose strength.

NOVUS HOMO.—The first consideration is—in what part of the house are the bees located, and do you propose doing it from the inside or the outside?

R. WILLIAM.—Unite the bees in the skep to those in the queenless hive; carefully transfer all brood.

ST. IVIAN.—1. No danger at all. 2. It depends upon what extractor you use. Let the projection of frame end rest on top of wire, and this will enable you to bring the comb close against the wire net. 3. Immaterial; use whichever you have. 4. Yes, so long as the supply does not run short.

J. H NEW.—The brown is bee-bread, a mixture of pollen and honey; the blue is mouldy pollen, and so is the white. If there is much of this, cut it out, or scrape the cells down to midrib. If there is but little, spray with salicylic acid solution, and when dry return to the bees; they will clear out the old pollen.

E. HOLMES.—The best way to supersede all your queens is by rearing others. You will find what you require in chapters 23 to 26 of *Bee-keepers' Guide-book*. Should you be in any difficulty after studying these, we shall be pleased to help you.

W. J., *Spalding*.—The stores are sour, hence the death of your bees. The combs (judging by the specimens sent) are only fit to melt down.

E. KENT.—The sugar sent is first-class.

BEE-KAY.—You will see by the correspondence columns that drones are early this season. The comb sent has become dark owing to prolonged use as brood comb. Nothing unusual about it in any way. No doubt the bees being very weak were robbed, and then joined the robbers and decamped to the robbing stock. Reports from all quarters show the bees to be busier than usual in brood-raising, therefore *if* a cold snap comes be sure there shall be no lack of food.

DELTA.—You need not renew the combs; the speciment sent is excellent.

THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

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Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 24.—REV. J. LAWSON SISSON.

We have much pleasure in presenting to our readers this week an autobiography of that veteran bee-keeper, the Rev. J. Lawson Sisson. He is one of the pioneers of modern bee-keeping, and has done much to advance the industry. For some years he was prominent as a judge at various shows, and, as a thoroughly practical man, was of much service. His failing health has prevented him during the last few years from taking a prominent part at shows, but those who remember him a few years ago will not easily forget how he attracted audiences to the bee-tent by his fearlessness with bees and his quaint, humorous remarks. The autobiography is an excellent index to his character, and we have much pleasure in presenting it to our readers in Mr. Sisson's own words:—

REV. J. LAWSON SISSON.

'I was *accidentally* born at Leeds on the 10th day of January, 1816. That accident nearly lost me a scholarship at Wakefield Grammar School some eighteen years afterwards. The scholarship was a good one—fifty guineas a-year for four years. My father was second master of the school, and resided, of course, at Wakefield. Being Christmas holidays, he and my mother went on a visit to relatives in Leeds, and so it happened that I was born there. The scholarships were for *natives* of Wakefield. There were three candidates, I being the youngest. We were examined by the Rector of Castleford, a gentleman appointed by the trustees. I was fortunate in getting the scholarship. The friends of one of the disappointed brought a Chancery suit against the trustees, contending that, as I was not absolutely a native of Wakefield, I had no right to election. However, the Court ruled otherwise, and the Vice-Chancellor gave them what might be called a 'wigging,' and condemned them in the costs. I have, at my age (seventy-four) a good memory of things that it is a pleasure to remember now. I once bought in the street, of Jonathan Martin, who set fire to York Minster, a broadsheet containing a history of his life, and illustrated by some rude woodcuts done by himself. Like his brother John, the celebrated painter ("Belshazzar's Feast," &c.), he was a painter of strange things. I remember the Governor of York Castle (Shepherd) showing my father and me some pictures painted by Jonathan in prison. I was taught my letters by a charity schoolboy of the name of Hazelgrave. He was Vicar of St. Peter's, Islington, in 1835. I had writing and arithmetic lessons from the schoolmaster of the Greencoat Charity School. His son became second master of the Grammar School, Fellow of St. John's College, Cambridge. He wrote a book on *Wakefield Worthies*, and often mentions my father's (Dr. Sisson's) name. He is now, I

believe, second classical master in the City of London School. I likewise remember that impostor, John Wroe, the prophet! and his wife, driving about in an old carriage drawn by a big, white Spanish mule—he got that by prophesying! He died at Melbourne about 1863.

'My father was a good scholar and a writer. He wrote an Anglo-Saxon grammar, an historical sketch of Wakefield Church (copies now very scarce), contributed translations of Spanish and Italian sonnets to the *Englishman* and other magazines, Divinity questions, a work on Inland Navigation, and was a good hand at epigram-making. At my father's I used to meet authors and publishers: Archdeacon Wrangham the scholar, Edward Moxon, Van Voorst, Sheridan Knowles, Radcliffe (Rouge Croix), Inglis ("Derwent Conway" was his *nom de plume*, I think), and many others whose names I have forgotten. I was a delicate lad, and kept much at home. A great friend of my father was a somewhat eccentric old bachelor; he was a magistrate, and had a place called "Moor House;" he travelled a good deal, and wrote a work on Niagara. He gave me the camera he had used for sketching abroad—that gave me my love of photography in after-days.

'Being, as I have said, a delicate lad, I was much at home. I did a good deal in drawing and sketching, and even tried to work on copper. I copied in pen-and-ink several of Hollar's etchings; also Cuitt's large etchings of Yorkshire ruins, Kirkstall, Jervaulx Abbey, &c. My father was for some years Vicar of Coleford, Gloucestershire. I went to Cambridge, and having taken my degree, I was ordained to the Curacy of Monmouth by Dr. Musgrave, bishop of Hereford; that was in December, 1840. I took priest's orders in 1841. The climate being very relaxing, I left in the middle of 1841, and entered on the Curacy of Hunstanton, in this county. A few months after I was presented to the living of Swafield by Lord Granville Somerset, who was chancellor of the Duchy of Lancaster then. I held that seven years, and was presented to Edinthorpe, my present living, by Lord Carlisle. My predecessor in this living and myself have held it for 100 years.

'In 1850 I began to take much interest in bee-keeping, and, being a bit of a carpenter, made a number of hives—Nutt's, for instance, and those engraved in a *brochure* written by Mr. Cotton, at Oxford—the "Conservative Bee-keeper." I began just about that time to photograph, and have still a little photo on paper of some of my hives. Dr. Diamond, who was the first to call special attention to the Talbotype and Calotype processes, used to write in *Notes and Queries*. He gave great impetus to the art, as there was no *Photographic Journal* or *News*. I belong now to the Norfolk and Norwich Camera Club, and they call me the patriarch of photography, as I was one of the first (in time) thirty-nine or forty years ago. A number of my letters appeared in *Notes and Queries* for 1852-3-4.

'Having put a curate into this living, I took my family to Switzerland for a time. While there I got the offer of the English chaplaincy at Lausanne, and the Bishop of London licensed me to that post, January, 1857. Marion, of Paris and London, published a little work of mine on the paper processes, illustrated with stereoscopic views printed from my negatives.

'While at Lausanne Sir Charles Elliot obtained a nomination to the Royal Navy for my only son, who was educated, I may say, altogether in Switzerland. He passed a very good examination on the *Britannia*, being first for French and drawing, and first-class in other subjects. Time came when he was made Commander, and he then obtained the valuable post of Port-Captain at Natal, South Africa. He had not been there many months, when he was taken with typhoid fever, which killed him in a day or two. That was the heaviest blow I ever had. A most accomplished, amiable fellow; a good linguist and artist. There was a wreck off what is called the Point—a dangerous place. He took the command of the lifeboat, got together a scratch crew. Starting at eight p.m., the heavy surf (well known on that coast) washed over the boat for eight hours. The crew of twenty-two men were all saved. He was very happily married, and a son was born three months after his death. The Government unanimously voted 500*l.* to his widow—a small gain for her great loss. Often do I call to mind how, when he was at home, he would come down the garden while I was busy with the bees, and say—his pipe in his mouth—"Well, sir, how are the bees to-day?" I confess I have never cared quite so much for them since.

'While at Lausanne I was fortunate in making the acquaintance of many worth knowing, and I would put first the Baroness Burdett-Coutts, who was a member of my congregation when she was staying at Lausanne, and a friend of my good friend, Chauncey Hare Townsend. When I think of it, it does seem strange that perhaps I was the only one at Lausanne at that time who, in after-years, should join the British Bee-keepers' Association, of which she has been such a supporting friend from the very beginning.

'My acquaintance with our lamented friend Raynor began at the first exhibition of bees at the Crystal Palace. Like Mr. R., I joined the B.B.K.A. at the first, and have had some experience in judging at shows in a great number of places—Kensington, Lincoln, Boston, Norwich, Yarmouth, Fakenham, and lots of others. I wrote some hundred letters on bee-keeping for cottagers in a local paper. My letters made a stir among those who did not think of keeping bees. I am now unable to work among my bees as I used to do, but I have an undying love for them. I know I have written a lot of egotistical twaddle, but the editor has it in his own power to cut it down or blot it out altogether. I live in a sort of hermitage in these green solitudes, but have a number of kind friends who now and then come to have a chat and a laugh with me, for I can still laugh and enjoy it.—J. Lawson Sisson, *Edingthorpe Rectory, North Walsham, Norfolk.*'

DEVELOPMENT IN THE HONEY BEE.

By R. A. H. Grimshaw.

(*Continued from page* 114.)

We must now picture such nectar-giving plants as the honey-bee requires, such as also want the honey-bee, growing in corresponding profusion with each other, those yielding what is required, living on by the agency of the insect, whether as an annual, a biennial, or a perennial; those failing to adapt themselves to their surroundings gradually becoming extinct. So it has been with plants and animals, so it is now—a gradual creeping encroachment, a migration southwards and northwards would inevitably follow in the case of those animals, birds, insects, and plants as were most capable of adapting themselves to harder conditions, as families of light-lovers and shade-lovers always follow their bent; just as plants lifted up into changed conditions by the crumpling, cooling crust of the earth, lived in some cases and developed into higher forms, exactly as the gentians, thymes, aubretias, and others reach in our own day higher grades of perfection than they could reach in low, swampy, hot surroundings, so the gradual evolution of the bee proceeded apace with the development of the plants suitable for its sustenance. Now a northern advance of the honey-bee and its plants is almost exactly corresponding to their elevation above the surface of the sea—that is, plants found flourishing at comparatively great heights in mountainous regions are found in similar luxuriance at lower levels in more northerly latitudes, and there seems to be a regular system in this. Let bees get accustomed to more adverse elevated conditions, and they will also get used to unfavourable northerly and southerly environments. We then find them distributed, not by man but by their adaptability, to even the climate of the North Cape.

A sting is no uncommon thing amongst insects other than bees, and it is right to suppose that the female bees defending a nest would so use their rapidly degenerating ovipositors, now that they were becoming less and less necessary to the community as repeoplers, the acrid secretions of the so-called poison glands would be pumped out by the involuntary muscular effort accompanying the extrusion of the ovipositor.

The gall-flies, which make holes in plants in which to place their eggs, corrode the surrounding substance by the ejectment of poison through the ovipositor; and many other insects have the same power of secreting and using an irritating poisonous substance by means of the egg-placing apparatus. It is now an old, uncontradicted, and uncontroverted assertion, that were the sting, as we know it, originally intended to be used as a means of attack and defence, the more perfect reproducing insects would have it, and use it. The drone-bee has it not, and the queen uses her ovipositor as a sting only under the exceptional and abnormal excitement of a dread of being superseded. We will, then, even at a remote period in the history of our bee, admit the possession by it of an instrument it gradually finds of excellent use for defence, and also that the venomous secretion ejected adds to the completeness of this adaptation of those parts now becoming gradually aborted to other purposes. The rapidly developing barbs on the sting are, in all probability, the edges of the abdominal rings of the larva, which were covered over by the chitine of the perfect insect's egg-placer, exactly as we find ribs and terminal points in many leaves of plants. For example, a plentiful growth of cellular tissue gives us rounded or ovate leaves, whereas a sparse, scanty deposit of cell substances leaves the ribs and points unhidden, and we get pinnate, palmate, and spiny leaves. The holly-bush is a ready illustration of this. Where well nourished, near the central axis, the holly leaves are often not prickly, whilst on the side shoots such is the case; the supposed 'provision of nature' against cattle browsing on the holly leaves is thus as fanciful as the term is vague. Where plants are *made to imitate* insects, and where insects have their structures and colours so altered and adapted that they imitate plants, both these cases being for either attraction or repulsion, it is customary to conceive of the plant or insect having some sort of intelligence that tells it of greater security or of more advantageous conditions of life following on this or that modification of parts. We speak of them *adapting themselves* to their environment, or of some extraordinary *provision of nature*, enabling them to survive in abnormally adverse surroundings. Ought we not rather, in all our views of evolution of modified structure, of atrophy or development, to think of these as the direct outcome of an ever-present, ever-active Ruler and Guide, of whose existence and power these changes are the surest and most convincing proof? Surely it is a far nobler thought, that the whole development of living structures is, slowly and gradually, directly resulting from the active presence of all-wise Omnipotence, than that things were created as we find them, by a fiat, and left to work themselves perfect or imperfect, to higher perfection or deeper imperfection, as if under the influence of a mysterious ferment?

Returning, then, to the sting of the bee, we see it gradually being used more and more as a specialised tool of defence, again and again withdrawn by reason of its only partially barbed state. Higher specialisation, accompanied by impoverished brood food and restricted cell-room, condemns it as a useless (because unnecessary) ovipositor. An impoverishment of chitinous structure permits an increased baring of skeleton, and the barbs become more and more apparent; or, in other words, we say the sting becomes more and more highly developed. When one examines the sting of the scorpion, one cannot but be struck with the similarity of structure between it and the skeleton of vertebrate animals. The sting seems much like a spine with rudiments of ribs attached to it, much as the barbs of the bees' sting are, the latter, however, being retrorse. When we remember that

in the transformation of the bee many of the segments of the larva become, as it were, absorbed—they disappear—we may not marvel at their reappearance in the insect now being adapted for other than reproductive purposes, and arrive at the conclusion that the sting of to-day is a much degraded ovipositor, and however beautiful and perfect it seems in its mechanism as a sting, we must bear in mind the sad seeming faultiness of its construction, which compasses the death of the individual having the temerity to use it, either in attack on enemies or defence of home.

The poison of the sting is another subject teeming with wonder. It is produced in such quantity by the worker, by a marvellously intricate process of secretion, and is used by such a remote decimal per cent of the inmates of a hive, that we cannot for a moment admit that it is put to its proper use when the whole mechanism and the reservoir of poison are forcibly torn from the body, leaving the defenceless bee in deathly throes. We find the so-called poison a very complex chemical substance, the principal active ingredient of which is the formic acid without which the honey stored by the bee would ferment. We find this acid in the honey, assuredly put into it by the bee. We also know it is not the formic acid of the sting that poisons our blood, but a deadly alkaloid, as yet unnamed, existing in, fortunately, small proportion, that does the mischief in certain idiosyncracies of constitution. Hence it is (with this as with all other alkaloids) familiarity breeds contempt; the human system becomes inured to the poison, and may in time bear with impunity, and apparently without injury, what in earlier stages would have been a deadly dose. Alas! there is danger that constant repetitions of these minute doses of bee-poison may, perchance, produce in some bee-keepers constitutional mischief; on the other hand, it is safe to affirm that, so far as one can now judge, the certain benefits far outweigh the disadvantages, which are, after all, more problematical than real. Students of bee physiology must find some *regular*, almost *daily*, use by the bee of what we call its sting, and the accompanying powerful complex secretion of the poison glands, a most potent poisonous alkaloid, capable of being pumped into use by marvellously perfect mechanism. How does the formic acid (for example) found in honey get there, if not by means of the sting? And what is it gives honey its distinctive character as honey, and not simply flavoured grape sugar changed from cane sugar by a salivary secretion, if not the action upon it of the so-called poison added to it through the apertures behind the sting-barbs? How often we see workers marching about with a drop of this substance at the end of that beautiful structure so well fitted to saw or pierce a minute hole in a cell covering! Such, perhaps, being the case, the question opens itself up as to whether the difference between ripe and unripe honey, and the reason of varying granulation, is not one of an addition to it or absence from it of this secretion. The undoubted medicinal properties of honey certainly are due in a great measure to the active principles of plants which exist in the gathered nectar; but to my mind much of the benefit is due to the presence in honey of some unknown property imparted to it by the bee itself, and it is extremely probable that this misnamed poison is the secret of the alembic. Certainly so much perfection of structure as we find in the sting and poison-bag does not remain dormant and useless in 999 cases out of a 1000, for I suppose not more than this proportion amongst bees ever use this modified ovipositor as a sting. No; I would as soon believe that the beautiful apparatus for pumping back chyle as brood food would remained unused, as that an equally perfect pair of saws sliding in grooves and feeding such a potential secretion were not just as regularly and usefully brought into daily action. The instinct to sting in defence of its home exists only in the worker-bees of the hive, and, so far as my limited observation serves, more rarely in the nurse. This instinct would naturally be most developed where it was oftenest used, and where the enemies of the bee most abounded. It would be handed on from generations of nurse and worker to generations of brood until it reached that point of perfection (!) possessed by the Syrian and Cyprian (amongst cultivated bees), the very acme of defence, or attained that acute degree of irascibility found in many tropical varieties, to approach or pass under the nests of which, is followed by such an attack in force that man and beast have to make a precipitate stampede. On the other hand, there are races of bees to be found on the earth which, though having stings, seem to have no desire to use them in defence of their stores, until we come down to the Carniolans and Ligurians of our domestic kinds. There is no kind of doubt, I think, that the docility of these varieties is due to the serenity of secluded life, during ages free from any undue number of natural enemies in their habitat.

(*To be continued.*)

In the *Revue Internationale* Mons. G. Bertrand says that in central Europe it is in the second half of March that the first examination of hives can be made, if there are days on which bees fly. If none fly, the hive can very well be left alone till the beginning of April, as it is not very important. The first examination causes excitement and induces the queen to lay, for not only is there no advantage in forcing the rearing of brood when it is still cold and the bees are still few in number, but it is dangerous to do so. The bees that have wintered are old and feeble; they can only give their attention to a small quantity of brood, and it is only in April, when the population begins to increase by the hatching out of young bees, that the laying can be stimulated without inconvenience. The old bees, if they are overwrought, die by degrees, brood suffers, or laying is relaxed, instead of being increased.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR *of the "British Bee Journal," c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 1st page of Advertisements.)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

SELF-HIVING SWARMS.

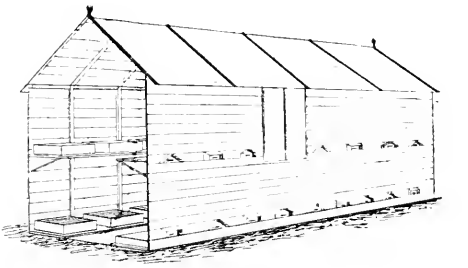
[135.] Doubtless, every lover of bees who has heard of this plan has been much interested in it, and hopes for its success. The swarming season is one of great pleasure to the bee-keeper, but it is also one of great anxiety. Last summer I almost lived in the garden daily from twelve to four o'clock; nevertheless, two, and I think three, swarms escaped, I suppose while I was getting my 'necessary food,' so that I speak feelingly in the matter. Others have suffered in the same way, and should gladly welcome this new departure. It is the duty of every one to help it forward with any hints likely to be useful, so I will try to assist a little.

We all know the habit the bees have of 'hanging out,' sometimes for days before swarming. I suppose they have some wise end in view. Possibly they are arranging amicably among themselves who shall go and who shall stay behind. Perhaps they are only waiting the good pleasure of the queen as to when they shall set sail. Anyway, this notion of theirs should rather be encouraged than thwarted. Now this plan of Mr. Bennett's (which I like much better than Alley's) knocks it on the head altogether. I think there is an easy method of allowing them still to amuse themselves—even supposing it to be mere amusement or even idleness—in the way they appear to like.

Nearly all our modern hives have some kind of shelter or porch over the alighting-board. My idea is simply that it would be better to cover with excluder zinc the whole space from the edge of the porch to the edge of the alighting-board (the whole length), covering in the ends also in such hives as are open, so as to leave as much room as possible for the bees to indulge in their 'hanging out' propensity. Of course, there must be an aperture cut in this zinc opposite the entrance the exact size of the board or tunnel—say, six inches by one and three-quarter inches—in which it can be inserted. I believe this will be a great improvement, and I should like to hear what our more learned bee-keepers think of it.—C. C. P., *Valentia, Co. Kerry.*

BEE-HOUSES, NOT BEE-CUPBOARDS.

[136.] I have had some experience of keeping bees in houses, and therefore hope the following particulars may be useful to your correspondents who desire information. I am thoroughly opposed to such a bee-house—or rather, beehive cupboard—as is illustrated in *B.B.J.* for January 23rd. I can see very slight benefit, and many serious disadvantages, from using such. In 1886 I asked a question in the *Journal* about the utility of a bee-house, and received discouraging answers, but I am now able to report from practical experience that such, if properly made, are a great success. The first bee-house I had was 12 ft. square, made of match-board, and held thirty hives, but it was not nearly substantial enough. The boarding shrunk away from the framing, and it was by no means bee-proof. I now use this small house as a store-room. In 1887 I built the shed of which a rough sketch by my sister is given, and it has in



[In order to save space only a portion of the house is shown.—ED.]

every way answered my anticipations. The house is 50 ft. long, 8 ft. 9 in. wide, and 8 ft. high to the wall-plate. A house this size will hold ninety-six hives. For the sake of showing the arrangement of the interior, it is drawn as though one end were removed. There are two revolving windows in each side, and one in the end. At the opposite end is the door. The bottom hives are on separate floor-boards; those above are on a shelf, which is 4 ft. 6 in. from the floor, thus allowing of ample room for doubling-boxes. My shelves and also floor-boards are 2 ft. wide, and I thus get a passage-way the whole length of the house, 4 ft. 9 in. wide. The hives are of the simplest construction, having no fixed bottoms and no covers, and are all single-sided. Entrances are cut in the side of the house, and the hives stand back 2 in. from the sides, so that they may not contract damp. A simple tunnel of wood serves as a passage-way for the bees. On the outside of the house porches are fixed of three different patterns, and these again are painted different colours, to assist the bees in distinguishing their right hive. In such a house you can do extracting and bottling honey, but if you require to do much carpentering it would be better to build another shed near for that purpose, as continued hammering in winter might prove disturbing to the bees. I allow a

space of 2 ft. to each hive. My porches are 11 in. wide, and thus there is a space of 13 in. between each porch. I have found no trouble from the nearness of the entrances, either by robbing or mistaking the right porch, and there is no difference in the strength of the hives on the top or bottom row.

My house runs north and south, the hives face east and west. Your correspondent can make the house whatever length he requires, according to the number of hives it is to hold, but I should not advise making a house any narrower. The sides and roof are best made of flooring boards, allowing for the sides 1 in. of overlap. For the roof let the boards lie flat, and cover them with roofing felt, which keep well tarred. The floor should be strongly made with joists, only 18 in. apart, so as to avoid jarring the bottom hives when working in the house. The house stands on a slight foundation of bricks or stones to keep the timbers dry. On this foundation lay a flat board, 6 in. wide, 1 in. thick. On this board the joists rest, and on top of the joists the bottom sill, which is 4 × 3. The uprights are 3 × 2, and are morticed into the sill. They are 2 ft. apart from centre to centre. The top sill is 4 × 3, and receives the tops of the uprights. On this top sill the rafters rest; they project 6 in., so as to form eaves, and measure 3 × 2. The windows revolve on central pivots, and are provided with shutters. If the house is properly made, it will be mouse-proof. I reach the hives on the top shelf by means of a pair of light steps, having a large platform on the top. This I push about as required.

I have found no practical objections to such a bee-house, but, on the contrary, many advantages. For example, you have only one roof to keep water-tight; your hives are much less costly, and more easily made. You can introduce queens, or feed the bees, by lamplight; you can extract honey during showery weather, and you do not attract robbers when opening a hive in spring or autumn. You are also much less liable to stings, for the bees, which fly up when you take off the quilts, find themselves in a room, and go direct to the window, which, by a single turn, you can open and liberate the bees before proceeding to the next hive. The hives having no roofs to be lifted about, you can manipulate them much more quickly, and being in a room are not so liable to sudden changes in temperature. As a rule I manipulate with the windows open, but if there is a tendency for stray bees to fly in, I keep them shut. Unless at work, I keep the shutters up, and the house dark, as otherwise I find bees push their way out under the quilts, and worry themselves to death in the room.

When putting up my houses, I received valuable aid from Mr. Simmins, of Brighton, and from the late Rev. Geo. Raynor. I append an extract from a letter which I received from Mr. Raynor, dated April 21st, 1886:—'From your description of the bee-house, I should think bees will do well in it. In all hives, wherever placed, the quilts must fit so close to the frames that not a bee can escape. Have you tried the "enamel quilts" for summer use? If not, I advise you to give them a trial. Over them a sheet of felt or carpet, with crown-board over all, will prevent any escape of bees if the frames fit properly in the hives. . . . . The windows should be kept open while manipulating in the house. A shutter, tightly fitting, so as to exclude the light, would also prevent loss of bee-life in case of escape of bees. When manipulating, it is well to keep both door and window open, as affording ready exit for the bees.' I find, to prevent bees pushing out under the quilts, it is cheaper and more handy to use the shutters, and thus keep the house dark, than to have crown-boards for each hive.

When honey gets scarce, it is best not to do bottling or storing honey in the shed, as the smell will then attract bees, and I have not yet seen a wooden house which is absolutely bee-proof after it has been in use some time. I shall be glad to give any further information.—Edward J. Gibbins, *Neath, Glamorganshire.*

AN EARLY DRONE.

[137.] On looking around my hives, 'as usual after work, to see if anything out of the general way had happened during the day,' my eye caught sight of something which proved to be a drone—dead. As this was the end of February, I thought it unusually early. Since then I have examined the colony, and found it in splendid condition both as regards bees and brood, the bees looking very healthy and ready for work.

Respecting the joint alluded to by Mr. Bonner Chambers, it is one in general use by all joiners and cabinet-makers—an ordinary dovetail joint. Not much fear of patent in this.—W. H. Drinkwater, *Thame.*

[The joint alluded to is not the ordinary dovetail joint, but a longitudinal mitre dovetail joint. —Ed.]

HELP WANTED.

[138.] I am in need of your help. Being about to move from Cheshire to London, in order to study medicine, I want to take my bees with me, but cannot, by advertising or otherwise, hear of a small piece of ground which I could rent, in the neighbourhood of London, for hives and shed. If there were a shed or large room adjoining, I would rent that. I am advertising in the *Journal*, but as many of your readers will not see the advertisement, I hope you will print this letter to call attention to it, in the hope that some one who wishes to help on bee-keeping may bring the matter before the notice of some small farmer or cottager who has a waste corner of ground to spare, and might add a little to his income by letting it to me. I began bee-keeping last spring with two stocks and three swarms, which gave an average of 40 lbs. each, and are all in good heart now. I should be very sorry to have to give them up.—W. H.

NOTES ON BEEHIVES—SECTIONS.

[139.] Under the above title (121, page 150) Mr. Bonner Chambers gives an illustration of a dovetail joint which he thinks very suitable for hives and sections. For many years I and others have used the dovetailed joint shown, and have found it very good; at the same time it is not likely to come into extensive use in this country, because it is so difficult to make this sort of dovetail in most kinds of wood. At least one manufacturer in America used to make this type, and a local joiner near here has made several for me, but he charged highly for the amount of work done. One good point in this form of joint is that the hives can so easily be put together and taken apart again, when they store away in a comparatively small space. I find on examination that I have fifteen section crates made with this joint.

Referring to the last half of Mr. Chambers's letter, about the finish of section work, I must say I differ from him as to the position of worst finish in sections. He says it is at the sides; I would say the bottom corners. He has got one step towards a theoretically perfect section, but to be perfect it seems to me it would require to give uninterrupted passage past all faces, and with this idea in view I have tried plain wood sections one and a half inches wide on all sides, held by a strip of tin laid flat above and beneath, so that the bees could freely pass every face, and so would finish the comb up to the wood all round. I found a practical difficulty in suitably holding the sections, though where this was accomplished the work was above the average. However, I should not have troubled you with this effusion if you had not casually mentioned my address as Secretary of the East Lothian Bee-keepers' Association. As you will see below, I have removed from my old home, but I have taken most of my bees with me. Unfortunately the B.K.A. here is in a very depressed state, and I have been unable to do much for it lately, owing to my striking into farm-life on my own account. Complimenting you on the new form of the *B.B.J.*—GEORGE D. CLARK, *Eaglescarnie Mains, Haddington.*

HIVE JOINTS.

[140.] Mr. T. Bonner Chambers (121) shows a proposed joint for angles of hives, &c. As a practical joiner, I should say it is decidedly weak and difficult to make. It is known, technically, as 'mitre-dovetail grooving,' and is more suitable for a joint lengthwise of the grain.

If Mr. T. B. C. wants the strongest joint, let him try what is known as 'water-tank' dovetailing, that is pins and tails same size, well painted before putting together with *thick* 'priming,' and then nailed both ways.

I append sketch of the joint I use; it does not take more than half the time of dovetailing, and when well painted before nailing is quite water-tight.—W. H. AUGUR.

[This is the ordinary, but excellent, groove and tongue-joint.—ED.]

ABNORMAL QUEENS.

[141.] I noticed in your issue of 27th March (113) the news of an early drone. The following peculiar case may possibly interest some of your numerous readers. On March 22nd I found drones flying in my apiary, and on opening their hive discovered over a score upon the two centre frames, one of which also contained about a dozen sealed drone larvæ in worker-cells. There were about 3 lbs. of sealed stores, but the candy placed over the frames last autumn had all been consumed. Three frames had large patches of regularly sealed worker brood surrounded by a fringe of eggs and larvæ in various stages.

On referring to my diary I find drones were flying from this hive on the 7th of November last, and that an examination of the hive took place, as queenlessness was suspected, but the queen was found to be all right, and there were two small patches of eggs and sealed brood. At the present time, too, the queen has every appearance of health, so that one is a little puzzled at this example of persistent drone-breeding and preservation, and I should much like to hear your explanation of the freak.—J. PALMER, *Ludlow.*

[We should say this queen has been injured in some way. If you feel inclined to depose her we should be pleased if you would send her up *alive* for examination; but if not, and the bees get rid of her, then please send her up, although dead. We doubt much if it is worth keeping her.—ED.]

A STARVATION SWARM.

[142.] A strange experience in bee-keeping, in consequence of the sudden warm weather of this past week, has taught me a lesson I hope never to forget. Should it be an uncommon case, perhaps it may be a warning to other novices to beware of carrying out the good principal of 'let well alone' too far.

I had two stocks of bees last year, one very strong, giving excellent results, and the other very weak, having been useless for two years. Two old stocks were sent to me in the autumn in exactly the same condition, one strong and one weak, with the permission to add the latter stock to my own weak one. This was easily done, my own queen being successfully taken away, and the fresh-comer seen to be a nice young queen, and therefore left in possession. The bees were closed up with five frames full of stores. The winter was passed without a trouble of any kind—dry roofs, carpets in good order, and bees seen to fly equally well from all three stocks. But when March came, I was always away from home when an examination of the hives could have easily been made, and the cold winds of the other days troubled me greatly, but I knew that the hives were all three well stocked with food. Only yesterday was I informed that a swarm of bees had been seen over the wall dividing the kitchen-garden, where these hives stand at a distance of about ten yards inwards, from the street. It seemed

too absurd, and I utterly disbelieved it, except that I had certainly seen an unusual number of bees hovering over the two strong stocks early on the morning of the day before, viz., Friday, but had not a moment's leisure to go and look them over on that glorious day. The gardener noticed the bees in a state of commotion all the morning and all the afternoon of that hot day, but never once noticed them clustering on either of the hives, nor could he guess from which one they issued. This morning I looked over my hives, and found the *united weak stock* perfectly empty and cleaned out, and dry of all stores. About a dozen bees are still clinging to a frame with their heads buried in the cells, looking in vain for more food before flying off to join the rest. There is also plenty of sealed brood, and many a young bee just hatched, and too weak to fly off. By the description of the mass of bees seen, clustering about on the street side of the wall and on the pavement as well, it is evident that my two worthless weak stocks would have made a rare good profit this year had I seen to their feeding-bottles some weeks ago. Nobody knows where the bees have flown to, nor whether anybody has had the good luck to secure them.

Was it only want of food that induced the queen to seek a new home? The hives stand in as good a garden as any bees could desire, and the many wall-fruit trees have been in flower already a long time.—F. HERSCHEL, *Slough, March 30th*, 1890.

[No doubt judicious feeding, in accordance with our repeated advice in 'Useful Hints,' would have saved your stock. Starvation swarms and robbing will, we are afraid, be unduly prevalent this fine, hot spring, unless great care be exercised. Above all things avoid spilling any syrup about, or there will be robbing.—ED.]

BEES AND FERTILISATION.

[143.] I can give you a little information about bees and fruit-trees. I had six hives last year in a large orchard, and we grow fruit for market. The hives are not in the centre—more to the east—standing in a row of apple-trees thirteen feet apart: these were loaded, and everything else round about them (plums, currants, gooseberries), but all round outside the orchard and good part of the south side had very little fruit. The fruit-trees stand thick, and I notice the bees flying low down amongst the trees' shelter from the winds back to the hives—the orchard being on a hill we get the east winds very strong.

Tom-tits are very useful birds about fruit-trees, but bad about beehives in winter. I have kept bees over twelve years, but have never seen tits touch them till 1888; they worry so that I am obliged to shoot them. I think I killed twenty the last winter. I found one hive several times in such an agitated state that I thought they had lost their queen, till I saw Mr. Tom-tit passing in at the mouth of the hive. He seemed to stick to that one. No other hive like it.

I have been interested in bees a good many years. I did not know how to handle them till I joined the Herts Association and began to read the *B.B.J.* I went to the meeting at Watford in 1888. I was promised a report how it was settled. I did not take the *Journal* for some time after (I have not heard a word about the Association since). I helped a friend drive some condemned bees at a farmhouse, and a vicious lot they were. I was paid out the first time I saw any driven. I am going to tell you about this one sort not because I had no others, I had some from another place the same year, but they dwindled and died in two or three years; so have others that I have had lately. The first lot were the common black bees, I believe. I have got the same sort now; they are very hardy, good honey-gatherers. They have not swarmed to my knowledge, nor have I re-queened for five years. When we drove them they were in a very large wooden hive, holding ten frames. We tied some combs in to give them a start. My master would have them put up in a loft over a fruit-room; they were up there three years. I found they did not do much good in spring; the chilly winds used to blow them down to the ground—never to rise again. One day I found the ground covered with bees. I did not like to see that, so I put them down on the ground. In 1883 they swarmed. I hived them in a wooden hive, in which some bees had died in the winter. I did not clean the hive as I ought, so they came out the next day. I hived again—it was Sunday—and they flew right away the next time. In 1884 I put a super on in May. They filled that in six weeks and built their own combs. I think there was about 40 lbs. of honey in it. There was a field of beans close by. The honey was rather dark.

In 1885 there must have been two queens, for the supers were three parts full of brood. The top of the body-hive was wood, in three pieces. By turning to one end there was space for the bees to come up into the super. I had bought three hives in spring, of the standard frame size, on legs. I found they would suit me better among so many enemies, and in 1886 I turned one of my old single-walled hives into a standard shape, double-walled. I used comb foundation for the first hive. I put the hive under the old one, and they filled it by the end of the season. I extracted the old combs. In 1887 the same lot of bees gave 70 lbs. of honey extracted from supers, not touching any in the body-hive: 1888 gave me 40 lbs. in supers. None of my other seven hives gave me any. In 1889 I had over 70 lbs. of extracted honey. My supers are six inches deep with eight frames. When I put them on I have a piece of quilt over the centre of the body-hive: the queen goes up and lays eggs in the outside one: but all the centre super is clear honey. I extract those that have honey, and leave the brood in the centre of the super; that entices them to fill the super again. My hive top covers the super close down to the hive. I find it half the battle over keeping them warm.

At starting, the honey that I get is chiefly from white clover. When the crop is cut the honey season is over.—G. H., *Berkhampstead, Herts.*

Gleanings.

There is quite a lively correspondence going on in America with respect to thickening and widening the top bars of frames to prevent brace combs. The desire seems to be to make them five-eighths of an inch thick, on account of the thinner ones sagging. We have found our bars frequently sagging, even with a shorter bar than that generally used in America. When the bars have sagged and the bee-space between frames and supers enlarged, brace combs will be built. Others propose to make the bars wider, and think by doing so brace combs will be avoided.

In the *American Bee Journal*, G. W. Demaree gives a summary of his observations on nectar-bearing plants and some of their peculiarities. In that class of nectar-producing plants upon which domestic animals chiefly feed, he found that they only secrete nectar after the sun begins to warm the earth, and the domestic animals begin to retire to the shady places for protection against heat and annoyance from flies. Chief amongst these are the clovers. Many plants that are not eaten by cattle, such as catnip, milkweed, figwort, hyssop, &c., produce nectar at any time, and seem to be governed by no fixed rule. Other plants, such as buckwheat, smartweed, spider-plant, dandelion, &c., produce nectar only in the early part of the day. Another class is peculiar because the plants are at their best in the heat of the day; amongst these are horehound, mullein, motherwort, milkweed, &c. Then there is a class of plants that are at their best only in cool weather. These are the asters, golden rods, bonesets, &c. He also states Alsike clover is a more profuse nectar-bearer than white clover, but it lacks vitality. On the whole, he considers white clover as the king of all the honey plants.

In the *Bee-keepers' Handy Book*, H. Alley says: 'The most serious objection to the narrow top bar is the fact that the bees build the combs between the bars, and fasten them to the honey-board, bottom of the sections, or to whatever the frames are covered with. When this is the case, it is difficult to remove the combs from a hive. Now, this can be mostly, if not wholly, obviated if wide top bars are used; and as there is no reasonable objection to using such, I would strongly advise the novice to adopt them at the beginning.' There is much talk about top bars in America just now. Our objection to wide top bars is the difficulty of uncapping honey-cells. Brood combs are usually $\frac{7}{8}$ of an inch thick, and the $\frac{7}{8}$-in. bar just forms a guide for the uncapping knife.

In the *Bee-keepers' Review*, W. T. F. Petty, alluding to brace combs and honey-boards, says: 'With a deep brood-chamber and hanging frames, it is very difficult to space the frames accurately enough to prevent brace combs. With close-ended frames with top bars $1\frac{1}{4}$ ins. wide and $\frac{1}{4}$ in. thick, he is able to do so.' As to the Heddon honey-board, he says: 'If Mr. Heddon had used a $\frac{1}{4}$-in. bee-space instead of $\frac{9}{16}$ in. between his brood frames, he would probably not have invented either the honey-board or the queen excluder.' By dispensing with the honey-board and using thin top bars, the sections are brought very close to the brood-nest, thus reducing to a minimum the distance to be travelled by the bees. By-the-by, it is something new to learn that Mr. Heddon invented the queen excluder. Queen excluders were in use here many years before they were introduced in America.

In the *American Apiculturist*, Dr. Tinker condemns the honey-board with Heddon's break-joint principle, and demonstrates that, instead of its being an advantage, it is a positive obstruction to the working of bees in supers. Moreover, the break-joint slots in his trials did not prove a bar to the extension of brace combs, as had been alleged. It was found that, if anything, there were fewer brace combs built where the passage-ways were continuous than where they were broken by slots. It was also found that the break-joint slots interfered with the perception of light at the entrance by the bees in the upper parts of the hive: and if they were tiered up more than 24 ins. high, the bees in the upper storeys were unable to find their way out of the hives. They were practically lost in their hives, ridiculous as it may appear, and so became consumers rather than producers. In the hives where the passages were continuous, no such results were observed.

There is to be a change made in the publication of the *Canadian Bee Journal*. For some time it has been incorporated with the *Poultry Weekly*, making a paper of sixteen pages, eight pages being devoted to each subject. Bee-keepers seem to want a paper of their own, and to satisfy their wishes it is proposed to publish the *Canadian Bee Journal* twice a month, and devote the sixteen pages of each issue to bee-keeping, the alternate weeks being taken by the *Canadian Poultry Weekly*. If both are taken, the price will remain one dollar, as at present, or 75 cents if only one or other of the two papers is taken. We wish the paper success.

Wooden boards for hive covers were at one time in vogue here, and have long since been discarded by us for several reasons. The subject has been brought up in America by L. W. Lighty in the *American Bee Journal*, who strongly advocates their use. After saying all he has to say against quilts, he concludes, 'The only hive cover that is convenient, and will save the lives of the bees, is a plain, good board, with two cross-pieces, nailed or screwed on the top at each end, to keep it from warping. There must be a bee-space on the top of the brood-frames.' He says, further, he 'can open and close ten hives with flat-board covers in the same time that it

takes to open and close five hives with a cap and mat, and with killing only one-tenth as many bees. In these days of close calculation we must economise.' Some of our bee-keepers who used boards long ago, with the space which existed in all Woodbury hives, will want to know if this gentleman is only joking, or is really in earnest. He says he never was troubled with brace combs: but we know that brace combs were a constant source of annoyance when boards were used. We believe there is not only economy in using quilts, but that the bees do very much better with them than with boards; and if any bees get crushed, it is certainly not the fault of the quilt, but of the bee-keeper.

A novel way of getting rid of fertile workers is described by Z. T. Hawk in the *American Apiculturist*. He did not adopt the orthodox plan of carrying the bees and combs a hundred yards, and then shaking them off the combs. Time was too precious for fooling that way. He picked up the colony, and placed it on the top of its next neighbour. The latter was a good, powerful colony, working at a good rate in the sections. He removed the section-case and honey-board, and placed the queenless colony directly on the brood-chamber of the colony that had a queen. He then placed the section-case above this double brood-chamber, and work went on as though nothing had happened. In two or three days he gave the double colony another case of sections. When the work was well begun in this second case, he separated the brood-chambers in the evening, and gave one case of sections to each. At the time of dividing, he made sure that the queen had occupied all available cells in the brood-chamber that had before been queenless. The queenless hive then raised a queen. He does not think that the bees lost five minutes of time from harvest: in fact, he thinks there was a gain of energy resulting from the greater number of bees in the double colony. The result was more honey from the two than he would have got had they remained separate.

In the *Transactions of the Entomological Society*, Dr. D. Sharp says insects in motion are guided largely by the direction of light and the existence of light and shade. When walking they are guided by a combination of light impressions and tactile impressions, but he thinks the latter do not act when the insect is flying. There is not any evidence that the light perceptions are sufficiently complex to be entitled to be called seeing: but, as the large development of the compound eye permits the simultaneous perception of movement, its direction, and of lights and shades over a given area, a dragon-fly, for instance, may pursue and capture another insect without seeing it, in our sense of the word 'seeing.'

In the *American Apiculturist*, W. P. Henderson cautions bee-keepers against taking hold of the queen by the wings, and is satisfied he caused the death of one of his finest queens in this way. Upon touching her the queen became excited when he wished to remove her from a frame she was occupying, and resisted the removal by clinging with the hooks of her feet to the edges of the cells. She was not easily removed, and the resistance was so great that he thinks the bases of the wings were slightly detached from the body, which resulted in a permanent injury. Up to this time she was very prolific, but afterwards she laid very few eggs, and the bees, recognising the situation, began the construction of queen-cells before she died, which was in three or four days.

In the *American Apiculturist*, E. L. Pratt says: 'Have you ever noticed how clear of bees the entrance of a good working stock is kept, while about that of a poor stock are always anxiety and suspicion of approaching evils? The novice would pick upon the latter as stronger, while an examination would prove the contrary.'

Respecting drones, G. M. Doolittle says in *Gleanings* that much is lost by rearing drones, but that each colony should have one or two inches of drone comb, and this all in one frame, which should be placed outside the brood-nest, so that the queen will not fill it easily, and that it may be removed every twenty-three days, and the young drones destroyed. Any other drone cells in worker combs should be replaced by worker cells, the drone cells being cut out by old fruit cans without top or bottom, one of the edges being filed sharp. The same cans can be used for cutting worker combs to fit, and the combs can then be given to nuclei to mend.

In the *Australian Bee-keepers' Journal* we read that in that colony foul brood is rampant. From all quarters in Victoria comes the same story of disease among the bees, and bees all dying or dead. We hear of it in Gippsland, on the Murray, to the eastward, the westward, and also near home; it almost threatens the apicultural industry with destruction, and at all events calls for some decided and vigorous action. Much ignorance prevails on the subject amongst box-hive keepers. The bees die off, and the hives are allowed to remain on their stands to be robbed by other bees, and thus carry the disease far and wide. They propose that bee-keepers should meet in the various districts where the disease is rife, and deal with it at once. Local combination is recommended to establish a disinfection of the district or some kind of quarantine, or with the view of obtaining the enactment of some law to deal with the matter.

BATH AND WEST OF ENGLAND AGRICULTURAL SOCIETY.

Arrangements have been made to hold an exhibition of honey and bee-keeping appliances in connexion with the above show to be held at Rochester commencing on June 5th. Prize lists ready in a few days. Apply to J. Huckle, Secretary B. B. K. A., Kings Langley, Herts.

Selected Queries.

[4.] *Do you think bothering with such things as Melilotus leucantha and Limnanthes Douglasii pays the bee-keeper in this country?*

Personally I have had no experience of *Melilotus leucantha* and very little of *Limnanthes Douglasii*, but, speaking generally, I don't think it pays the bee-keeper to *sow* for a honey-crop in this country. It will 'pay' him far better to seek out a good location, where natural sources of supply abound, and where loss of crop means no loss of seed, ground-rent, or labour.—W. B. CARR.

Yes and no. Where bees are kept in the neighbourhood of towns, it may be found an advantage to cultivate a succession of such flowers. But in the country, and where bee-keeping is extensively practised, I should not consider it worth the trouble to provide such a slender source of bee-food.—J. GARRATT.

I do not think 'bothering' with anything pays, and I have lost my love for the former plant, owing to the long time it takes to become useful; but as regards *Limnanthes Douglasii*, I consider it of great value where there is space available for growing it. It is an annual, certain to bear a large crop of beautiful, highly scented flowers, specially attractive to bees; and as it comes close on the heels of orchard blossoms, in the interval between the apples and the white clover, it is really worthy considerable attention, and if half, or even a quarter, of an acre could be grown, its value would soon be proved. A great merit lies in it seeding itself, which it will do for several years in succession, and I have little doubt but that when 'going off' it would make useful pasture for sheep, and would seed itself sufficiently notwithstanding. Those who have not seen a good stretch of it can form but a poor idea of its beauty and aroma. Its foliage, before flowering, is of very pretty bright parsley green, which is, however, almost entirely hidden in its season by the multiplicity of its flower-cups of gold and silver, and the myriads of bees at work upon them. I am 'gone' on it for a bee-flower.—C. N. ABBOTT, *Fairlawn, Southall.*

The sowing of any seeds in England, unless the produce, other than nectar, is of a marketable value, is a losing game. Land is of too great a value here to be used simply for the production of nectar for the bee. A bed of crocuses in early spring, into which artificial pollen is placed, stimulates them a little, but a box of shavings or straw, protected from the rain, is a far superior receptacle for it, there being with this little or no waste. 'The game is not worth the candle.'—W. B. WEBSTER.

I am of opinion that it is not worth while in this country to plant *Melilotus* and *Limnanthes*, as at the date of their flowering there are plenty of honey-producing plants in bloom. The planting of crocus and *Arabis* I am strongly in favour of, as at the season of their flowering there is little else about, and undoubtedly then they are of great service. I think that *Arabis* especially should be very largely planted.—T. B. BLOW.

No experience with *Melilotus*, but know *Limnanthes* to be very valuable if sown in quantity.—W. M. GRAHAM.

No use at all: the ground so used can be more profitably devoted to culinary vegetables. —R. A. H. GRIMSHAW.

It does not pay to grow bee-flowers for bee-pasturage alone, more especially in small quantities. At the same time I would encourage planting waste ground, more particularly gravelly soil, with such honey-producing plants as borage, *Melilotus*, globe-flower, &c. Again, spring flowers planted near the apiary tend to keep bees from foraging a long distance off, thus preventing an increased death-rate, which would eventually be the case where bees have to fly a great distance in the fickle spring weather.—H. DOBBIE, *Tottenham, Norwich.*

Associations.

WORCESTERSHIRE B.K.A.

The annual general meeting was held at the Guildhall, Worcester, on March 26th. The Rev. S. Latham (Malvern) presided.

The annual report showed a balance in hand of 20*l.* 17*s.* 1*d.* The members at the close of the year were 103; the subscriptions amounted to 28*l.* 3*s.* The past season had been a much better one than for several years. The yield of honey had been exceptionally good, and very fine in quality; the tour of the expert had been extremely useful, and the financial condition of the Association was very satisfactory. The expert reported that, early in the season, matters were not in a very prosperous condition. In some districts every stock had perished: those in straw skeps suffered most. But where proper care had been exercised, and timely feeding attended to, the bees were found in a good condition. There was a large demand for swarms at the beginning of the season. As regards disease the county has a clean bill of health.

One or two cases were met with where persons kept bees for the sake of the fruit plantations, being persuaded they were of great use in fertilising the blossoms, and thus increasing the amount of fruit. If the fruit-growers of Worcestershire only knew the full advantage of bees in this direction, many more would be kept. The only drawback seemed to be that the bees required more attention and time than busy men could afford. One great consideration for all bee-keepers was the provision of a central and certain outlet for honey at a reasonable price for the least possible risk.

Mr. Haynes' receipts last season from the produce of eight or nine hives amounted to 17*l.* 10*s.*, and from one hive he had taken 130 one-pound sections. Mr. Cleasby's and Mr. Martin's returns had averaged about thirty shillings a hive.

Queries and Replies.

QUERY.—*Loss of Colony.*—Last autumn I had a good cast of bees, which were placed in a straw skep at swarming. These I drove and transferred into a bar-frame hive about the end of September. I fed them on syrup with satisfactory results. Plenty of brood was raised, and the last time I examined frames before making up for winter I saw the queen, and the hive was strong with bees, so I anticipated good results this spring. Last week I fancied this particular hive was getting too much attention from its next-door neighbours, and not seeing much pollen being carried into it, I decided on an examination, with the result that I found, to my surprise, not a handful of bees, and the queen nowhere in the hive. There were plenty of stores, and the brood of last autumn had all hatched out, and the combs were in a first-rate, healthy condition. This colony strengthened so much during the time I fed them up that they raised three or four queens, as I saw them cast out, and to make myself sure at the time, I opened the hive and saw the queen-cells torn open. Will any of your correspondents give the matter a thought and reply, as I cannot account for the entire loss of colony?—*County Down, Ireland.*

REPLY.—The fact of the queen-cells being constructed so late in the season showed that the bees were endeavouring either to supersede the queen or replace a lost one. In either case the hive was practically queenless. All the old bees have died off, and only the young ones remained. Transferring the hive in September is late unless there are large numbers of young bees, a good queen, and plenty of finished combs: but as you say nothing about these, we presume the bees had to make their own combs, and thus wore themselves out. You do not say when the cast came off, what combs the hive had, and on how many frames the bees were made up for winter.

Echoes from the Hives.

East Devon, March 31st, 1890.—I examined seven bar-frame hives this day, and found in every hive plenty of brood: and in one, much drone brood just maturing. Is it not very unusual to find drone brood at this time of year? I have never seen it so early. What does it portend? Plenty of stores left, but all the large boxes of candy (covering eight frames and two inches deep) empty. Fresh honey going in, and plenty of pollen also. Bees strong and healthy.—MUSJID. [In forward seasons like the present it is not unusual to find drone brood maturing at this time of the year in strong colonies.—ED.]

Windsor, March 27th.—My seven stocks are in excellent condition: in fact, better than the five I had last season were in May, and those averaged 42 lbs. of honey each. All have been carrying pollen.—W. H. AUGUR.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

MONA.—Yours appears to be a case of the bees superseding their queen, as they very frequently do when she does not appear to them quite up to the mark.

MOUCHE-À-MIEL.—1. We should prefer to let the skep swarm, but it depends entirely upon yourself, whether you wish for a swarm or stock. After the bees have swarmed, you can transfer if you like. Should the bees be short of food, they must be supplied with syrup. Study the *Bee-keepers' Guide-book*, and if you are in any difficulty after that, apply to us. 2. By all means use the Stewarton boxes. You will find full instructions in *The Stewarton: the Hive for the Busy Man*, by Rev. E. Bartrum. We have been very successful with them, and in Scotland they are largely used. After you have read the pamphlet we shall be pleased to help you on any point you may be in difficulty about.

O. P.—You may take the net down, say about the 20th. Glue would do, it is used by some, but is not nice. Odd wax chips melted up do best.

G. H. T.—Reliquefy and then dilute with, say, a fourth of its bulk of *warm* water; well mix.

CHIPS.—We have not tried Aspinall's enamel for the inside of an extractor, and should very much hesitate to do so. Honey should be extracted in good *tinned* extractors; these, if kept clean, are harmless.

MIDDLESEX.—No fear of swarming yet; but on no account let your bees get short of food. Feed slowly, but regularly, about a quarter of a pint of syrup *every* evening. Give another frame first *warm* day (mind the cold wind now on); another frame, say, in a week.

HONEYTOWN.—We cannot say to which hive the dead belong. Put a piece of glass on the slope in front of the entrance. Those belonging to the hive will find their way out.

E. REYNARD.—1. Use a full sheet. 2. This must be a matter of observation at the instant: but in ordinary cases, no. Queens sent by post are supplied with food and accompanied by a few workers. If you wish the queen to go up into top chamber, give standard-sized frames on top; if you do not wish her to do so, then use shallow frames with queen excluder between.

THE
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BEE-KEEPERS' RECORD AND ADVISER.

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Editorial, Notices, &c.

THE PLYMOUTH SHOW.

We desire to draw the attention of our readers to the Show of the Royal Agricultural Society, which is to be held at Plymouth from the 23rd to the 27th of June next, and to remind intending competitors that entries close on the 1st of May. We trust that bee-keepers will loyally support the efforts of the B.B.K.A. to make the exhibit of honey a grand success. More especially is this to be desired at the present juncture, in view of what we may term the more aggressive position taken up by the Central Association at its last annual meeting. Hitherto it may be said, broadly speaking, that bee-keeping has been brought before the notice of the general public as a pleasant, instructive hobby, with, under good management, some pecuniary profit. The B.B.K.A. now feels itself justified, after years of patient endeavour to educate the public in the more humane system of bee-keeping, to attempt a much grander scheme, and to demonstrate beyond the shadow of a doubt that the necessary fertilisation of our various fruit blossoms depends in a great measure on our bees. The financial effect to the nation at large as the result of a good set of fruit would dwarf into utter insignificance the value of the largest crop of honey ever secured in this country. Those who are best able to form an opinion have not the slightest doubt as to the value of the honey-bee in securing the largest set of fruit possible under such varying climatic conditions as are usual during the season of fruit bloom. Again, it is an acknowledged fact by those specially engaged in seed-raising, that if a plant is fertilised by pollen from another plant, the result is more certain, besides resulting in greater vigour of the seed thus produced than if the pollen is received from a bloom on the same plant as the seed-bearing bloom. This fact emphasises the value of insect interference in securing proper fertilisation.

Possibly no plan equally useful to that of a show could be devised. It therefore behoves us as bee-keepers, anxious to see our gentle craft take up the position due to it, as among the most important of the minor industries of the country, to be up and doing, and to exert ourselves to the utmost to prove to the public that we are indeed in earnest in our determination to make our propaganda a success. We are fully aware that exhibiting honey entails trouble and expense; but we should never fail to remember that it is entirely owing to the self-denial of those who have gone before us in this respect that we have been enabled to benefit by their experience and labours, and so to gather, with comparative ease, the knowledge they had to grope for in face of difficulties which it is now almost impossible to gauge. Therefore it is a duty, which we are happy to say many consider a pleasure, to go on handing forward to our successors every information we can find the opportunity of imparting.

The date of the show precludes many from competing, but we have no option in the matter; it is well worth our while to continue under the *ægis* of the Royal Agricultural Society, even at the risk of not obtaining so complete a show as we might desire. A national competition has been mooted in our columns. We should be pleased to see this taken up, as it would enable all to compete under the most favourable circumstances—although, should the bees and the general vegetation continue as forward as at present, an increased number should have a fair chance of competing with success at the Plymouth Show. There should be no delay in applying for schedules, as it is essential that would-be competitors should thoroughly mature their plans. Schedules are now in the hands of Mr. Huckle, Kings Langley, Herts.

USEFUL HINTS.

Weather.—The cold winds of the last fortnight have been trying to the bees. Stirred into activity by the time of year, and by a certain amount of warm weather, prolific queens have been filling the brood nest with eggs. The larvæ have required considerable quantities of food, and a tolerable amount from natural sources has been forthcoming. The almond-trees, peaches, nectarines, and early sorts of plum have yielded a fair supply of honey, while the willow and elm catkins, as well as fruit blossoms, have furnished pollen; but during parts of days, at least, the workers have been kept at home by the searching winds. How eager they are to get abroad is seen directly the cold air currents stop awhile, and the sun induces the hope of warmth enough for the brood to be left, and for the toilers to fly without danger of fatal chilling. The moral of these remarks is that the feeding bottle will be a great help and comfort to strong stocks not well off for stores, while it affords the only hope of building up weak and poorly supplied colonies. There is valuable economy of heat, now so essential, in giving the syrup warm, and in covering up the bottles with flannel, felt, or other non-conducting material.

Waterproof Coverings.—Though much is to be said in favour of 'following nature,' and giving top coverings impervious to moisture, there is undoubted risk of dampness in the interior of the hives, and of mouldy combs, unless the non-porous material is now changed. We have found several instances this season in which mischief has been going on from this cause. The interior wetness was manifestly due to condensation within, not to leakage in roof or sides. We therefore strongly advise the speedy removal of waterproof sheets, and, in cases where dampness has resulted from their use, it will be advisable to shift stocks into dry, clean hives, and to remove mouldy combs. Of course a suitable warm evening should be chosen for the operation.

Spreading the Brood.—This plan, if cautiously carried out, is a most efficient means of increasing the strength of stocks. The novice must pay particular attention to directions, otherwise, in his haste to build up, he may actually weaken his bee population. The first thing is to crowd the brood nest by narrowing its dimensions by division-boards till every frame is fully covered with bees. Next choose a frame with the smallest quantity of brood in it, uncap its honey-cells, and insert the frame between two others containing more larvæ and eggs. Repeat the operation week by week. In the case of all the combs being well filled with brood, an empty comb may be put in the middle of the nest. If it contain no honey, the feeding bottle will probably be required. Later on, when young bees are hatching very fast, but not numerously enough to give a good queen-space for all the eggs she is capable of laying, two empty combs may be supplied, taking care not to put them together. We prefer in such a case to insert both rather than to defer the second for two or three days, because it is not advisable to make more frequent disturbance than is actually necessary. It is better, however, for beginners to move very cautiously in this operation, for, unless the brood nest is *crammed* with bees, the insertion of two combs might lead to the outer one at each end being deserted for the greater warmth of the centre, and this especially on cold nights. The result would be 'chilled brood,' with a host of unpleasant consequences, the least of which might turn out to be the loss of numerous larvæ and pupæ, and diminished strength in the stock. *Caution.*—When the bee-keeper is not able to carry out the instructions implicitly, he had better not attempt spreading brood, as very much more harm than good would result. It must be remembered that during cold nights the cluster of bees becomes very much compressed, and unless there are large quantities of bees to keep the outer combs covered the brood on these becomes chilled. All manipulations should, for the present, be performed on warm evenings. This is especially necessary when honey-cells have to be uncapped. The cappings, with the small quantities of adherent honey, must *not* be left about for the bees to discover in the morning.

Honey-getting.—It will be well for a decision to be speedily arrived at as to whether the supplies of the year shall be secured from various hives by sections or the extractor. Probably most of our readers may prefer to use both methods of taking honey. If, then, a particular stock is destined to be worked by sections, get ready a properly filled crate, so that it may be put on to a strong colony having good food stores directly the fruit blossoms are coming out in all their glory. No hive which is not full of bees, and evidently getting uncomfortably crowded, should be expected to take to sections. See to the thoroughly warm wrapping up of the crates, with plenty of top covering. We have found very useful the plan of lining crates on the outside by gluing on thick carpet-felt. Until the full heat of summer is upon us, the bees will not go up into sections unless the warmth from below is well retained in the crate. If the extractor is going to be used, select hives with plenty of room for combs behind a capacious brood nest; or, still better, such as can be conveniently 'doubled' or 'tiered up.' The method of treatment can be seen in any good guide-book to bee-keeping. We may possibly give directions in a later set of 'Useful Hints.' What we are now advocating is an early decision as to methods of honey-getting, so that preparations may be made in good time. In case bell-glasses are preferred, or various fanciful devices for show purposes, it is necessary again to insist on plenty of warm wrappings, for glass conducts heat so readily that the bees will not take to such 'supers' except during the hottest weather, unless they are covered with several thicknesses of flannel,

or with stout felt. Let these wrappings, then, be ready before the honey-flow comes.

Apparatus. — While recommending due preparation, we would caution beginners against going to needless expenses. A visit to a manufacturer of bee-appliances, and still more a good exhibition of bee-apparatus, becomes a sore temptation to the novice. Of course, if he has plenty of money, and does not care whether his bees pay or not, he can buy according to his pleasure rather than his needs. But where bee-keeping is likely to be given up if it does not pay, we strongly recommend the getting of only such articles as are sure to be required during the current season. Experience will soon become a guide as to the advisability of further outlay. Should there be doubt as to what is actually requisite, consult a reliable bee-keeper till wants reveal themselves.

CONDITION OF BEES AND OTHER MATTERS.

The winter just passed in Canada has been mild and moderate. About two weeks would cover all the sleighing we have had in this and contiguous counties of the province of Ontario. This kind of winter weather has, of course, had its effect on the bees, salutary or injurious according to circumstances. Those wintered inside, in warm repositories, have, as a rule, so far as I can learn, been affected injuriously; while those wintered outside, with more or less protection, have fared better — have wintered well to all appearance. The explanation is that those inside were too warm, and those outside about warm enough. True, some of the latter that had been heavily packed for a hard winter were doubtless also too warm, but, as an offset to this, they had an occasional flight. The too high temperature of those inside caused increased consumption of food, and unusual brood-rearing; and as this necessitated increased consumption of pollen as well as honey, the natural effect in protracted confinement was bee-diarrhœa. This affection has been unusually prevalent and severe among the indoor bees, and many colonies have succumbed. Another natural result of high winter temperature, both inside and out, is starvation. When the average bee-keeper prepares his bees for winter, for indoors or the open air, he prepares them for an average normal winter, both as to the amount of food and protection. I do not say this is a wise course, but it is the course usually taken. While it would be unwise to predict a mild winter or a severe winter, and accordingly vary the protection, it is always safe and correct to supply the bees with food enough for the utmost contingency of either cold or heat in winter.

From considerable inquiry made, the present condition of the bees is, that a considerable number of colonies are dead from diarrhœa and some starved, with a large proportion of the inside ones badly affected. An early flight may relieve these so that they may get through the spring: but as they are mostly inside yet, and the weather still unsuitable for the flight, especially of bees weakened and debilitated, the probability is that many will succumb to 'spring dwindling.' The critical time is yet to come. After it is over I shall report further.

Foul-brood Legislation.

Our Bill to aid honest and enlightened bee-keepers in the suppression and, if possible, extermination of this dreaded disease in Ontario, has passed the Provincial Legislature and become law.

As we now have a Minister of Agriculture for this province—the first appointment having been made recently — the work of securing legislation of this character is much less difficult than it was when agriculture (which legitimately includes apiculture) had no direct representation in the Cabinet. In the Hon. Charles Drury, the minister, we found a valuable ally in pushing the desired legislation through. He took the matter in hand earnestly and conscientiously, willing to concede anything to us which was just and reasonable, and more than that we did not ask or wish. While it is true that the Select Legislative Committee, through whose hands all such bills have to pass, altered or modified some of its minor provisions, yet the Bill has become law in all of its main provisions substantially as we submitted it in its original draft.

This Bill (now an Act) empowers the *Ontario Bee-keepers' Association* (which is legally incorporated) to elect a foul-brood inspector and sub-inspector at each annual meeting—its Board having power to act when necessary in the interim. The inspector, who is under the guidance and control of the Association in minor matters, has full power given him by the Act to deal with foul brood wherever he finds it within the province. He may cremate in virulent cases, or treat remedially in mild cases, as his judgment and the necessities of the case may require. To pay inspectors, the Legislature makes a special grant.

As the *British Bee Journal* may, perhaps, publish the Act in full, a copy of which it shall soon receive, I shall refrain from going into details here.

That this legislation is of vast and vital importance to the future of bee-culture in Canada is clear and certain, for it is an unfortunate fact that foul brood has been spreading rapidly in this province within a year or two. To suppress this, or even check it materially, without the aid of the law would have been impossible. And the Act we have been so fortunate as to secure will, I think, be admitted to be the best in force in any country in the world.

Hoping that British bee-keepers may succeed in inducing the Government of the mother country to follow the example of the colony in this respect, I wish all bee-keepers a good season. —Allen Pringle, *Selby, Ontario.*

[Would that England had a similar law.—Ed.]

REVIEW OF GERMAN BEE JOURNALS.

By J. Dennler.

Die Biene (Hesse). Editor, Pfarrer Weygandt. 1890. No. 2.—The new invention of Pfarrer Weygandt is being so much discussed that we cannot help referring to it here. But we are not yet able to give a definite opinion respecting it, as the experiment of applying heat to the hives is still in its preliminary stages, and the method requires the experience of several years before it is possible to decide whether this invention is really of such importance as to make its general introduction desirable, or whether it is destined to share the fate of Mr. Körbs's invention of combs with cells on one side only. Pfarrer Weygandt's invention is said to offer the following advantages:—He supplies the colonies with proper food (sugar or honey, flour or pollen, and water), and warm, dry air, containing hardly any moisture, or air rich in ozone, saturated with formic acid and the aroma from essential oils. Such air he supplies to his colonies, even in cold weather, by the application of heat by means of stoves, which is a very inexpensive process. The advantages claimed are: a saving of food, five pounds of sugar or honey, quarter-pound of pollen or flour, with a little water, being sufficient for a colony for the winter; no loss of bees in the winter; combs or pollen do not get mouldy, and there is no appearance of dysentery or foul brood in the hive. Driving may be had recourse to in the middle of the most severe winter, or at the beginning of spring, so that the colonies, even the smallest second swarms, are ready for swarming as soon as the honey season commences. A breed of foreign bees are easily kept pure, as drones and queens may be reared ready for the first fine days in spring before the native drones make their appearance outside the hive. Supernumerary queens survive the winter more easily and in greater safety. Inexpensive hives of thin material are quite sufficient for all purposes. A colony subjected to the heating process is able to do without food for three days. When bees are kept warm they eject but a minute quantity of dry excremental matter, and no fluids, consequently there is no necessity for their leaving the hive to cleanse themselves. Pfarrer Weygandt uses a cheap so-called 'Carbon-Natron' stove to raise the temperature inside his hives. Six weeks before swarms are wanted heat is applied as a stimulant, a slight raising of the temperature being commenced a week previously. For the present it is not likely that experiments to prove the value of this new invention will be made by bee-masters on a large scale, probably only by a few of the upper 10,000; and the *Prussian Bee Journal* expresses the opinion that in the meantime it would be better for bee-keepers generally not to take any notice of this novelty.

Dr. Dzierzon, in a letter to the editor of the *Luxemburg Bee Journal*, Mr. F. B. Kellen, dated 11th December, 1889, expresses himself on Weygandt's method as follows:—

'I am afraid that Mr. Weygandt, by unduly raising the expectations of bee-keepers as to the success of his method of raising the temperature in the hive, will do more harm than good. His assertion that the adoption of his plan would render it unnecessary that bees should leave the hive to cleanse themselves is a bold statement indeed. I have never seen a bee ejecting excrementitious matter in a solid state, and I consider it an impossibility, even if the colonies had a supply of air from the Sahara. It is a puzzle to me how Mr. Weygandt came to form such an opinion.—Yours truly, Dr. Dzierzon.'

Supplying Bees with Water in Winter.—In order to ascertain whether a necessity really exists for supplying bees with water in winter, Mr. Dennler, editor of the Alsace-Lorraine *Bee Journal*, applied to a great number of the most eminent practical bee-keepers, asking for their opinion on the subject, and this the majority of them gave him most willingly. Out of sixty-three bee-masters, fifty are opposed to giving water to bees in winter; seven recommend its use in exceptional cases—for example, when bees have been fed on candied honey; four consider it of advantage at the commencement of breeding in spring; and only two are absolutely in favour of it, viz., Mr. Sigle, of Feuerbach, and Mr. Vogel, of Lehmannshöfel.

Die Biene (Lower Franconia). 1890. No. 2. Editor, Mr. Hergenröther.—The Bee-keepers' Association for Lower Franconia are deploring the sudden death of their President, Pfarrer Rügemer, which took place at Königshofen on the 6th of January last. The late Pfarrer Rügemer was a thorough bee-master and an intelligent leader of the Association. The organization of the honey markets in Lower Franconia, more especially, is due to his efforts.

Deutscher Bienenfreund. 1890. No. 1. Editor, Mr. Krancher.—The first number for the present year commences with a biography, accompanied by the portrait, of the well-known and respected bee-master and author, Mr. C. J. H. Gravenhorst. The same number also contains an extract from an article by Dr. Alanus, written for the members of the Society of Vegetarians on the occasion of their festive meeting at Cologne. It is headed 'Saccharine and the Bees,' and reads as follows:—

'Fischer and Rabbow have noticed that ants, flies, and wasps, well known to be very eager after sweets of all kinds, display deliberate contempt for food in the preparation of which saccharine has been used. When a cake sweetened with saccharine was placed among ordinary cakes, these insects were not to be deceived; they would not touch the former, but only attacked the cakes prepared with sugar. Bee-keepers have discovered that saccharine is a *noli me tangere* to bees. On repeated attempts being made to compel bees to consume this article, these knowing insects became quite enraged and furious. Would that that biped animal, known in natural history by the name of *homo sapiens*, were as wise as our bee. Man allows his best food to be spoilt by this drug without even perceiving the fraud.'

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 1st page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of March, 1890, amounted to 2029*l*. [From a return furnished to Mr. E. H. Bellairs, Christchurch.]

SELLING HONEY.

[144.] Your remarks on this subject in your issue of March 13th (page 122) are of great interest, and should be the means of drawing the attention of the various county associations to the matter. There is no doubt that many county associations have from some cause or other ceased to exist, and many of these are those which at one time were the strongest and most energetic—the Bucks and the Hants and Isle of Wight in this part, for instance, to say nothing of many others. Among the causes which have led to this sad state of things, I am convinced that one of the most important has been the almost entire failure of county associations in solving this difficult question. Most associations put forward as one of their objects, and as an inducement to bee-keepers to join their ranks, that they assist members in the disposal of their honey; and I venture to say that three-fourths of those who become members do so with the anticipation that they will have no further difficulty in the matter, but that the whole of their surplus will be taken by the association, and they will have nothing further to do but to receive a fat cheque by return of post. I leave your readers to decide how far these anticipations have been realised in their own particular cases. Suffice it to say, that in but few instances have county associations taken any practical steps to meet the difficulty, for it is a difficult question, and is surrounded with dangers and risks. By far the greatest of these is the financial question. Few associations are in the possession of funds at all adequate to their taking upon themselves the risks of establishing depôts and purchasing the members' honey, and I think I may add that still less have the officials connected with them, who possess the business capacity for conducting such an enterprise with success, even if they possessed the funds to do it; for if the British Honey Company fails, how much more will a county depôt?

I was glad to see on page 160 that the Irish Bee-keepers' Association has so far managed to do so much with this 'sales' question, and I must say that, judging from their report, they have to thank the Messrs. Abbott to a large extent for its success. May I suggest that the Hon. Secretary favour us with the details of how they manage this department?

The Berkshire Bee-keepers' Association has for years been endeavouring to solve the question, with more or less of success. I fear for some time it was nearly all 'less,' but I think that they have now to a large extent got over the difficulty, and although it is at present only emerging from the embryo state, yet as such, the results have been most encouraging, and in view of your article referred to above I venture to give your readers the benefit of our experience, with the hope that the question may be taken up by other counties, with the result, I feel sure, of conferring a great benefit on the bee-keeping industry.

Being, like many other county associations, without the necessary item for successfully carrying on this branch of the work, viz., cash, the Council of the Berks Bee-keepers' Association had to consider how they could develop the honey sales without involving themselves in financial risks. To do so it was out of the question to think of establishing a honey depôt, with all its attendant risks and dangers; they therefore resolved to see what they could do by opening up existing markets, viz., to endeavour to induce as many as possible of the most respectable grocers, dairymen, chemists, greengrocers, &c., to undertake the sale of its members' honey. They have met with success far beyond their anticipations, and they feel that with care and management they have solved the difficulty, and at but little or no expense. The first thing to be considered was that in the event of our inducing tradesmen to undertake to act as agents for our Association, something must be done to bring the producer and the seller together. The latter would, of course, want to know how he was to identify our members' honey. It was therefore decided to bring out a county label, with the result—thanks to the ingenuity and taste of one of our members—the Association possesses a most beautiful and attractive label, a copy of which I should be glad if you could have reproduced in your columns; but I shall be pleased to send a specimen to the secretaries of other county associations who think of taking up the matter. But apart from the design, the most important feature of this label is that each one is numbered consecutively, and as they are sent out to members these numbers are registered, the reason for this being that if the Association guarantees the purity of its members' honey, some means must be found to trace out any dishonest practice, should such occur. It also gave us the means of confining our agents to our members.

Having got our label we proceeded to appoint our agents, and in almost every instance we have found respectable tradesmen ready and willing to help us in the matter. In Reading alone we have already secured six of the most respectable houses to undertake the sale of honey, and what is most important is that in nearly every case Berkshire bee-keepers' honey has displaced the foreign article.

The condition we impose upon our agents is that they shall purchase none but honey bearing the Association's label. We leave them and our members to settle the question of price, although we are always willing to advise either, or both, on the question; but the transaction is between themselves. We take care to appoint none but substantial and reliable firms, so that our members have but little risk as regards payment for their produce.

The Association also undertakes, on its part, to secure a supply of pure honey of the best quality whenever required, so that at any time our agent requires honey he sends to the County or District Secretary, who at once sends to the member who has honey to sell, and puts him into communication with the agent. We impress upon our members the importance of cleanliness and neatness in packing, and suggest the best means of glazing sections and bottling honey, and our agent is requested to refuse any that fails in either respect, and further than this, the following notice is on the label:—

'Attention is called to the fact that *pure honey will candy*, or become white and hard. This label is issued with a view of encouraging the sale of pure Berkshire honey. Any complaints as to quality, &c., to be addressed (quoting register No. to the Assistant Secretary, Reading.'

It will thus be seen that every care is taken to check impure honey being placed on the market in the name of the Association. The Association also undertakes to advertise its agents in the local papers, and by other means, as its funds permit, thereby offering another attraction to tradesmen to act as agents.

I think I have as briefly as possible given a rough idea of our *modus operandi*, the advantages of which may be summed up as follows:—

Freedom from financial and trade risks.

Replacing the foreign article by local produce

Avoiding the risks and expenses of carriage by as far as possible disposing of each district's honey in its own locality.

Our scheme is as yet not fully developed, and we propose to extend our list of agents as required, and to secure agents in London and other large centres of population: but care must be taken to regulate the supply with the demand, and we hope that in the near future we shall be able to find a customer for every pound of honey produced by the members of the Berkshire Bee-keepers' Association. In doing so we believe we shall on our part have removed the cloud under which county associations at present rest.—A. D. Woodley, *Dorrington Road, Reading.*

A SPRING RIDE.

[145.] I know nothing so exhilarating as to dash rapidly through the sweet morning's ozone before it has been aired, and the chill taken off by the sun's beams, which, at the hour I started my trip, kept trying to pierce the mist as it hung on the hillsides of Wharfedale. To push along, up hill and down dale, on one's own iron horse, far from the common iron track, clears the cobwebs from the system, and treats the sluggish liver to a sort of *massage* not a whit less beneficial than riding on horseback, so often prescribed for those who have a liver and know it. Then a rapid shooting descent of two miles down the Chevin into Otley town shows how

> 'The big round tears
> Cours'd one another down his innocent nose
> In piteous chase.'

I had a dim idea that 'coasting' through the village of Askwith a year ago I saw a few skeps, and as the place was a delightful out-of-the-world spot, I was bent on combining curiosity, pleasure, and exercise, so that this communication will be to your readers nothing that gives them any news beyond recording my satisfaction at finding yet another of the craft who loves bees for themselves alone. Instead of taking 'mine ease at mine inn,' I took a stroll whilst the inner man was being prepared for; there, on a level with my pipe, as I leaned on the picturesque cottage wall, were two sad-looking skeps, having the usual earthen cover, &c., which always reminds me of some one who had been bonneted with something several sizes too big. I began thinking how I should begin the wording of the complaint I certainly intended making on the subject of skeps *versus* frame hives, when the owner appeared at the cottage door in the shape of a cheery, active dame, who soon put my mind at ease by saying she had more hives in the top garden. Here were nine hives 'of sorts'—two bar-frames, old straw skeps, with one and two openings each; then came a small tub, with entrance and supering or feed-hole cut 'from the wood.' These things were the results of much swarming last year, when anything that would hold bees was requisitioned. This country bee-keeper had put down pots and pans to have a chat with a fellow-craftsman, and she showed such interest in the subject that I was loth to go away. Here was the village blacksmith's wife, who said *she couldn't do without her bees*, hived fourteen swarms last year, united in autumn, and fed up with syrup of proper make (recipe given by a passer-by), and I believe sold 11*l.* worth of honey last year. A swarm lodged rather high, she said, was always hived by herself; a stable fork thrust through the bottom of a skep was quietly insinuated under the swarm, and a couple of upward thrusts did the rest.

All being well, I purpose having a chat occasionally with my new friend, and I will try and impart some information as to how the world of modern bee-keeping jogs along, in return for some ideas one can always glean or extract

when conversing with an intelligent, sympathetic mind, on a subject of common interest.

Envy, we are told, is a great sin. Well, I put it to every candid bee-keeper who reads these lines, has he not seen occasionally a snug 'nest' of an apiary where *everything* seemed favourable to successful bee-keeping, and said, in his own mind, 'If it were not wrong I would covet this spot, this "dearer, sweeter spot than all the rest?"' So, with as little evil as possible, I would like to be so blessed by circumstances (and Providence, for that is what we mean) that I could keep my bees in such a lovely *locale*, so steeply sloping southwards on the side of one of the sweetest stretches of scenery in the land—a district immortalised by Turner, who painted more here and here more than elsewhere, drew more inspiration from nature, wandering by months together along the banks of Wharfe, as she tumbles along in her course, growing from the peat-stained streamlet of the high moors into the bold, rapid river, the haunt of the otter (and, *cela va sans dire*, of the trout). So does our village slope, that climatal conditions are in it equal to those one or two degrees further south. Besides, in autumn, when crops of ling honey are harvested, there is no troublous trip to the moors, and the home-coming of the all too often saddened bee-keeper, saddened by a poor season and sometimes sodden by rain, for here the moors behind are well in reach of the bees, whilst unsurpassed pasture-land stretches in front and on either side. How often—oh, how often—I have wished for a bee-garden on the borderland of clover and ling, where the incomplete sections and combs might be 'finished off' with the very best strong stuff imaginable, calculated to impart to flower honey the most delightful fragrance and flavour. So, philosophising on how much I have to be thankful for and how little to find fault with *as things are*, I mount my 'Apollo' (not Pegasus, for I am to find how easy it is to descend), load my gun (pipe), and legs up, scout downwards and homewards, only stopping now and then to notice the bloom of celandine and wild strawberry, the brilliant green of Doronicum, the purple branches of larch just beginning to hide amongst the tender green of their young growth. No, it is *not* imagination: I can smell the resinous aroma of the pines, an indescribable sweetness of lavender-cum-terebine. Toiling along homewards I have only a passing glance for two fishermen, who are planted, with stern stoicism, by the river-side (I mean they are so still and stork-like that they *seem* planted), but I learn afterwards both are the very chummiest bee-neighbours of —X-Tractor.

PRACTICAL MANAGEMENT OF AN APIARY.

[146.] For many years during which I first kept bees, I kept them in a haphazard, uncertain sort of way, not knowing, as each spring-time and summer approached, exactly what to aim at or to do. Possibly many beginners are in the same condition, and therefore a brief description of the manner in which experienced bee-keepers now manage their apiaries might be of great use to them.

Perhaps there are several different methods, and it might be advantageous to compare them with one another. I do not profess to be a very experienced bee-keeper, but I will briefly describe my method of practically managing my apiary.

I do not in any way disturb my stocks until the beginning of March, and then merely take a peep at them to see that they are alive and provided with some food. About the middle or end of March I begin to stimulate them by opening a few honey-cells, or giving them syrup, and continue this slowly for some time, until there is a fair prospect of their being able to provide food for themselves. I do not spread the brood, thinking that it is really not necessary, and that it breaks up the brood nest too much and exposes it to serious risks. I have tried it, but abandoned it. In April, if the weather be suitable, I make a thorough examination: clean the hives when necessary, reduce the number of frames in some cases, and in others leave them in their original number; but in all cases afterwards I gradually increase the number of the frames on the outside of the brood nest, according as the bees are able to occupy them. I also reduce the space between the frames (which in winter I allow to be about half an inch, so as to allow the bees to cluster thickly) to three-eighths of an inch, or even a quarter of an inch, to prevent drone-breeding. All the added frames are either fully worked-out frames of comb, or frames fully filled with foundation and wired. I never use frames half filled or with starters, for the result invariably is a large amount of useless drone-breeding. As the season advances, and the hives are increased to ten or twelve frames, and are full of bees, I give them a section frame containing empty worked-out sections of the previous year. This I place outside the brood nest, and without excluder zinc, for I find that the queen rarely visits it, and if she happens to do so, it does not matter much. As soon as the bees have taken thoroughly to these sections, and are filling them with honey, I transfer them, with the bees upon them, to a section crate, and, filling up the latter with sections, place it above the brood nest again without excluder zinc. Of course, this runs the risk of spoiling a few sections; but I think that it is worth the risk, as my experience is that the bees take far more readily to the sections without excluder zinc than with it, and that in some cases nothing will induce them to pass through it. As soon as the first crate is nearly finished, I add a second beneath it, &c.; but by that time probably the swarming fever has appeared. It would be a happy thing if we could control this swarming fever, but all the means which I have tried have proved uncertain and generally ineffective.

Swarming seems to be the natural impulse of

bees, implanted within them by their all-wise Creator, and I do not think that it is wise in us to check it, but rather to make the best of it. I have been amused at friend Alley's device for catching a swarm! Fancy the hullabaloo of a powerful stock on a fine summer's morning with a tube of excluder zinc blocking up their exit! One ought not to condemn a device without having tried it; but to expect a great body of excited bees quietly to pass along a perforated tube, turn a corner, and take possession of an empty hive without the pleasure of careering in the air and making as much noise and stir as possible over—to them—such an important event as their annual 'flitting,' seems utterly 'beside the mark.'

Artificial swarming with me has been practically a failure. It seems to take all life and energy from the bees, and to be a most miserable substitute for natural swarming. The plan, therefore, upon which I have had to fall back is one which was recommended some years ago in your excellent *Journal*, viz., allow the bees to swarm naturally, watching them, or getting a boy or some one to watch them, as well as you can; then hive the swarm on the old spot with three or four frames of brood and honey (queen-cells being carefully cut out), and the rest of the hive filled with frames of foundation, also returning to it the section crate or crates, and removing all the other frames of brood, &c., with the bees adhering to them, to another site, perhaps alongside another hive. It is wonderful to see how vigorously the bees will work upon this plan; there is little or no delay, except the weather should prove unfavourable for swarming when the bees are prepared for it; and it seems to adjust itself to their natural instincts. At the close of the season, if increase be not desired, the remains of the old stock can be united with the hive next to it; but if increase of stocks be desired, it can be worked up with a little feeding and care to form a good additional stock. I tried this plan last year and found that it worked well; and I purpose, all being well, trying it again this year.—A Sussex Rector.

SHALLOW FRAMES.

[147.] I can't agree with Mr. Reid (No. 126, page 153) that 'shallow frames spaced $1\frac{3}{5}$ in. from centre to centre are not unsuitable for rearing brood in' (worker brood is, of course, here implied). The usual accepted distance for brood of any kind is $1\frac{7}{16}$ of an inch, and when spaced anything over $1\frac{1}{4}$ in. from centre to centre frames are liable to have drone brood reared in them.

My frames are spaced at this $1\frac{1}{4}$ in. distance at brood-rearing time, and in '88, the year of the intermittent honey-flow, the honey collected on one warm day being used up on three or four succeeding cold days, the bees were unable to keep possession of the sections. My queens utilised them, and in every instance deposited drone eggs there, and had those shallow frames, spaced only $\frac{1}{16}$ of an inch less, been in place of the sections, they would have fared no better. I always use full sheets of foundation in my sections. I also object to frames placed over the nest at brood-rearing time. The weather is often at that time cold, and the existing brood might become chilled. Mr. Stanford, late Hon. Sec. I.B.K.A., recommends having a new box of frames placed underneath if required before the honey-flow comes on (see letter 734, page 586, vol. 14, *B.B.J.*), and standard frames, as assisting better to prevent swarming, are more suitable here.

My Raynor extractor is no new invention; I have had it in use for four years. I am aware that the cages in some extractors are only 9 in. wide. This has but one cage, 10 in. square, with room for two $4\frac{3}{4}$ in. section-holders on two opposite sides, and one on each of the remainder. My outer lifts are of 11 in. plank. These give room for quilts, &c., over inner boxes, and are a protection from wind, and in storing away frames and sections for winter I place them in their several hive-boxes or section-racks, and tier them up. The same can be done with shallow frames, economising space, and saving a separate box for the purpose.—W. B., *Patrickswell, Co. Limerick.*

A CHEAP STIMULATING FEEDER.

[148.] Procure an ordinary 1-lb. screw-cap honey bottle, and pierce one, two, three, or as many holes as you think necessary, fill with syrup, and invert on quilt. If quilt is of unbleached calico, or Hessian, it will answer well; but if quilts are of felt, then it would be entirely useless unless a corner of felt quilt is turned up, and a piece of suitable material is placed on frames to stand the inverted bottle on. Prick the holes close enough to go between the frames, so that the bees can get at them. I have pricked mine in a triangle, the three holes being a $\frac{1}{4}$ in. from each other. I consider the regulating feeders sold by the leading bee-appliance manufactures to be A 1, but look at the price of them! My bees ran very short of stores this spring, and I had only one regulating feeder amongst the lot, and I did not feel disposed to sport 1*s.* 6*d.* or so on each hive for a feeder, so I tried the above simple affair, and it has fully answered my expectations. With the three holes on, a colony will take down 1 lb. of syrup in forty-eight hours. The holes are easily made with a darning needle. There is no need to make the needle red hot, and it is not necessary to have cork wad in cap—in fact it is better without it.—On n'a rien sans Peine.

TITS.

[149.] There has been a great deal said about tits at one time and the other, and I will give my experience of their depredations. In the first place, I find it don't take long for a couple of old hands to clean out a colony of bees. Once they begin tapping at the door, they keep up the game till every bee is devoured, or the

colony is so weakened that it perishes from cold, and I don't doubt that bee-keepers may have mistaken the state of the colony for a case of spring dwindling or queenlessness. I also find that they *will not eat dead bees*, and I care not what any one may have to say to the contrary. After watching the habits of the pretty little fellows for several years, and feeding them to keep them from my hives, which I found to be a loss of time and good material, I have come to the conclusion that the best thing for me to do is to destroy every one that comes within my apiary, which is a simple matter, and I hope that bee-keepers will have more thought for themselves and bees than for mischievous tits, and not be led away by the remarks of 'A Lover of Bees, Birds, and Cats,' for my experience teaches me that he is altogether wrong (see 84, page 107), and with regard to being liable to a fine of 10*l*., he might have put it, *if caught*.

I am extremely grateful to Mr. Grimshaw for kindly answering my question *re* Cocaine. Although unknown to me personally, his ably written papers published from time to time were a guarantee that he was able to give a scientific answer.—On n'a rien sans Peine.

NEWS FROM CANADA.

[150.] We are having a very open winter this year in Ontario. I am afraid that where bees are wintered outside, the loss will be considerable, owing to so much rain and dampness. As far as I know my bees are wintering well in the cellar. I put them in the cellar about the end of November, and have only looked in the cellar once, and that was about a month ago.—W. Couse, *Streetsville, Ontario*.

BEE-KEEPING IN LINCOLNSHIRE.

[151.] I commenced bee-keeping four years ago on the modern frame-hive principle, and have been a constant reader of the *Journal*, from which I have gathered a lot of information. My stocks now number seventeen, with a fair take of honey, with the exception of 1888, which was a very poor year with us. We are having very fine weather. I have examined all stocks, and find them in the best of condition for the coming season. Queens doing their duty to my satisfaction fully three weeks in advance of last year.

I have been greatly interested in the correspondence which has been going on in the *Journal* for some time as to which is the best bee for all purposes, Carniolans included. I myself shall stand by the English bee, with queens bred from two-year-old mothers upon the swarming impulse, and with proper management I fully believe they will hold their own against all comers. I have queens at the present time that have taken possession of five or six frames, and in the height of the season will occupy sixteen or eighteen. Our district consists chiefly of meadow-land.—G. W. Edlington, *Brigg, Lincolnshire*.

FERTILISATION OF SAINFOIN BY BEES PROVED.

[152.] I notice you are asking for proofs of the utility of bee-keeping in connexion with flori-, horti-, and agriculture. I can vouch for the following fact, as it was under my personal notice all through the season. Some six years ago a large farmer, who then farmed a large breadth of land (say 2000 acres), had about twenty acres of sainfoin nearly adjoining my apiary. Early in the spring of 1884, I asked him to do both himself and me a service; and I promised him if he would leave the piece of sainfoin for seed, that (weather permitting) I would guarantee that he should have a good crop of seed. Of course I had to explain to him the fertilisation theory, and, after some time, he decided to do himself the service by leaving the piece of sainfoin uncut, with the result that it was an excellent yield of seed; though, just in the middle of the blooming period, we had nearly a week of wet, cold weather, during which my bees were not able to visit the field: and I am sure that never was a plainer or more convincing proof adduced of the great value and utility of the honey-bees in fructifying and fertilising the flowers of sainfoin than was the field of seed as it stood ripening for the harvest. The bottom part of each head of seed was full of seed; also the tops were full, but the middle of the heads were not full. This was not in a few selected or isolated instances, but in the bulk of the seed-heads all over the field. Now, as I said above, just in the middle of the bloom, the weather was unpropitious, and, as a natural sequence, the flowers bloomed and faded without being visited by the bees, consequently no fertilisation took place, and no seed was or could be produced. So much for success; now, then, for an instance of failure. A farmer, hearing of Mr. Gladstone's memorable speech on 'Jam,' decided on planting a large field with gooseberry and currant bushes; he did so, several acres in extent, reckoned up the number of bushes, and what each bush ought to produce year after year, totted up the produce into bushels, and expected to clear a good profit in the field. But the whole thing turned out a failure; there were no bees in the district to visit the flowers, and after a year or two, waiting for the return that never came, the farmer was disgusted with small-fruit growing, and ploughed the land up.

The crops of red clover seed of 1889 were light in our district, and I opine the prime cause was the very small number of humble-bees that managed to survive the wet season of 1888. My boy takes great interest in humble-bees, and generally keeps several nests in boxes, &c., during the summer months; and I remember the difficulty he had to 'spot' nests last year to get his usual complement of colonies.

Mr. G. Parker (115) should invest in a dictionary, when he would find foreign words and phrases, with their meaning in English, at the end of the book.—W. Woodley, *Reading*.

PREVENTION OF SWARMING.

[153.] I was much interested in Mr. Sharp's article (125) on 'Prevention of Swarming.' My experience in bee-keeping dates from the autumn of 1884. I have only had two natural swarms, one of which I desired: but the other I would much rather had stayed at home to complete the two crates of sections before going in search of another home, which I hope they got, as I never saw them again. This shows how inconvenient swarming is.

I have seen stocks of bees which have prepared for swarming treated in the same manner Mr. Sharp recommends, with this exception, that they were given one-inch starters instead of full sheets of foundation; but still they would persist in swarming in a few days after treatment. Since losing my swarm last year I have thought the matter over a good deal, and a plan has occurred to me which I believe will succeed—it is somewhat similar to Mr. Sharp's, only I intend removing the queen instead of removing the queen-cells; then, when the young queen is on the point of hatching, I should change them again, *i.e.*, remove queen from nucleus and return to stock, and give the queen-cell to the nucleus.

The point of my idea is that without the queen it would be impossible for the bees to swarm, and by the time she is re-introduced the swarming impulse would have gone. I have not yet tried this plan, but shall do so on the first opportunity, which, according to appearance, will be early, as stocks seem quite a month more forward than they did at this time last year.—A. J. Brown. *Bradley, Wotton-under-Edge.*

QUEEN-BEE FERTILISATION.

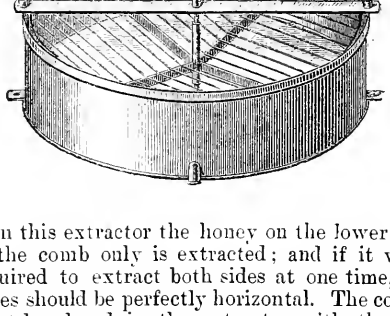
[154]. I enclose cutting from *Field, Farm, and Fireside*, of March 14th, 1890. I think it has a bearing on the discussion about 'Drone Comb in Casts.' I should very much like your opinion as to whether queens are fertilised in casts before the cast issues.—John J. Ambrose.

'The queen of a second swarm may have been fertilised before the swarm issued, because there is often a considerable lapse of time between the first and second swarms. After the first swarm leaves the parent hive, the remaining bees may decide not to send off a second one, and the young queen will be fertilised in due course; then the hive may become so crowded that the second swarm is sent off after all with a fertilised queen at its head. The queen may be fertilised when accompanying the swarm, but this is far from common. It is usual for the queens of second swarms to be unfertilised till a day or two after the swarm comes off; it is an exceptional circumstance that a second swarm has a fertile queen at its head when it issues from the hive. —Dunbar.'

[Second swarms are not usually as particular about the weather as first swarms, and when the young queen rushes out of the hive a portion of the bees follow her and form the cast, and this usually takes place about the ninth day after the swarm has issued. The queen of such a swarm, which we call a *cast*, is unfertilised. 'Dunbar' explains under what circumstances it is possible for a second swarm to have a fertilised queen, but this is very unusual, and the rule is that the queens are not fertilised before the second swarm issues, hence the advice always given to have fertile queens in readiness to give to casts to avoid the few days' delay between issue of swarm and commencement of laying.—Ed.]

Notes on Novelties.

Amongst improvements in extractors, we find one described by T. Binter in a Hungarian bee journal. It is somewhat on the same principle as the one we described in a former number of the *B. B. J.*: but whereas that had its cages perfectly horizontal, this one, as will be seen in the illustration, has them inclined at an angle of 30° from the central spindle.



In this extractor the honey on the lower side of the comb only is extracted; and if it were required to extract both sides at one time, the cages should be perfectly horizontal. The combs must be placed in the extractor with the top bar of frame towards the outside; otherwise, as the combs are not fastened usually to the bottom bar, the centrifugal force would be likely to break the combs away. We do not think this style of extractor likely to come into general use, as our own experiments years ago showed us that combs radiating from the centre, although capable of being extracted, are liable to be crushed if the extractor is driven too fast.

Gleanings.

In the *Echo des Alpes* we find M. Neymayr, in describing the landslips amongst the mountains in Switzerland, mentions that one of the worst that had happened was at Plurs, on the 25th August, 1618. He says that it was noticed on that day, at twelve o'clock, shortly before the catastrophe, that the bees in the place and all the neighbourhood of Plurs left their hives.

Queries and Replies.

QUERY.—May I ask for information from you, or from some of your experienced readers, on the following points:—1. What advantages would be gained by the owner of fifty colonies of bees by spacing the frames in the brood nest 1¼ in. instead of 1½ in. apart, and when should it be done? I have read that by so doing I should force the bees to store *all* their surplus honey in the supers; but it seems to me that at the end of the season I should have such an enormous amount of trouble and expense feeding up every colony, that all advantages would be more than counterbalanced. 2. Would the progeny of Carniolan queens crossed with black drones be likely to be good honey-gatherers? Would they probably be savage and difficult to handle, or would they inherit the Carniolan docility, and would they be likely to have the Carniolan swarming instinct? Two colonies with queens bred as above last summer, which I have lately seen, were certainly harder at work bringing in pollen than all the other colonies in a fair-sized apiary. 3. Is beet sugar, as is sometimes alleged, hurtful to bees? I am inclined to think not, as we are told by some bee-keepers of eminence that loaf sugar (particularly Tate's cubes, black brand) is the best for syrup-making. Some time ago I went over the stores of a large wholesale sugar merchant; he told me that all the loaf sugar is now made from beet, and that it would be impossible for me to find enough loaf sugar made from cane, in any towns about here, to feed my bees with; he, however, showed me some very pure moist cane sugar, known as 'Fowler's Pure Cane,' which I have since used and like much. The Fowlers are among the very few refiners in London who work exclusively with cane sugar. (I will enclose a small sample; it cost me 16*s.* per cwt.) 4. Can I compel my bees to make worker comb only? I use always full sheets of foundation in the brood nest, and yet they will sometimes draw it out into drone comb; and sometimes after drawing it all out into worker comb, they alter it afterwards into drone. This is unpleasant when frames have been nicely wired. I may mention I always allow a small quantity of drone comb. 5. Why are only the 4¼-in. × 4¼-in. 1 lb. sections recognised in prize competitions, when the 4½-in. × 4-in. are so much handier to use? Six just fill a standard frame, and crates made to hold them just nicely cover the tops of standard frames to the metal ends without objectionable flanges. Last season I was persuaded to try the 4½-in. × 4-in. sections, and much prefer them to the 4¼-in. square. I may mention that I tried the plain slatted honey board, slats across the frames, last summer, and they answered admirably; no brace combs and no trouble to get the crates off the hives. These, combined with Howard's sections filled with full sheets of foundation, were the means of my getting sections filled and sealed of such quality and appearance as no one in this neighbourhood could at all approach. I also find it of great advantage to have sheets of foundation for the brood frames cut so as to go within an eighth of an inch of both sides of the frame; it is then more securely fastened than when cut otherwise.—W. H. H., *East Kent*.

REPLY.—1. The advantage of placing the frames 1¼ in. from centre to centre is that it prevents the bees rearing drones. It will not make the bees store all their honey in the supers; but the bee-keeper, by inducing the queen to occupy the whole of the comb in brood chamber can compel them to do so. The great object the bee-keeper has in view is to have strong colonies, so that they can take advantage of any honey-flow. To obtain these strong colonies, it is necessary to raise large quantities of brood, so that there may be a large surplus population ready to take advantage of the honey-flow. With the standard frame it has been found that the colonies are not too strong, even if every available cell in brood chamber is occupied by brood, and we endeavour to have all our frames filled in this way. Bees when thus treated store all their honey in supers placed above. The trouble and expense of feeding up in the autumn is not so great as is imagined. Frequently bees gather enough in the autumn, after the main honey harvest has been taken in, to fill the cells vacant by the diminishing brood, and to last them through the winter. Anyhow, if they do not, a few days' rapid feeding will supply them with all they require. Of course, if our correspondent cannot get more for his honey than it costs him for sugar to feed, he would do well to use some of his combs of honey for winter stores. These can be put on either side of brood nest in the autumn. 2. As a rule, queens transmit working qualities and constitution, and drones disposition; therefore it is probable that Carniolan queens crossed with black drones would be good honey-gatherers, and would also have the Carniolan swarming instinct; and as to character, they would partake of that of the drone. We have seen Carniolans crossed by black drones very mild, whilst others are the reverse. 3. Beet sugar is not good for bees; but there is not the same objection to it now as there was formerly, as its manufacture has been much improved. It has a much lower sweetening power than cane sugar, and we should always use this if we could get it, if only from motives of economy. The sample of sugar you send is very good. 4. By keeping your frames 1¼ in. from centre to centre and filling your frames with worker foundation, you compel the bees to construct worker cells. They may desire to make a few drone cells; but as drone combs are 1¼ in. thick, it would be impossible for the bees to rear drones in combs spaced to only that distance. 5. Because they were the sections almost universally used, and machinery being made to suit this size, they could be had without any difficulty. Racks and frames were made to take these sections, and this size was adopted by bee-keepers generally as the most suitable.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication. All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

NOVUS HOMO.—Thanks for sketch. We should remove the bees from the outside, but we should strongly advise you to get some friendly bee-keeper of experience to help you. It is a very ticklish operation if you have but little experience, and one that really requires personal observation in order to advise. Is it a brick wall, or an old-fashioned timber-framed house? Do you know if they work inwards or downwards? The grub sent is wax-moth. Transfer after swarming.

HONEYTOWN.—If we bought a queen at *2s. 6d.* we should accept all risks. Proved queens cannot be raised for the money if the raiser is to live by his labour. Can you put a strong stock in the place of the one being robbed and put the weak one on the spot now occupied by the strong lot?

E. REYNARD.—It is no use removing queen to induce stock to raise queen-cells before drones are flying. No date for this can be fixed. It all depends on the weather. Some seasons more drones are on the wing early in May than are in other years by the middle of June. Thoughtful observation and a ready adaptability to varying circumstances are of the first importance in bee-keeping. Therefore we welcome questions as a means of helping those who have no near neighbour with whom they can consult. If nucleus swarming and re-uniting is done as laid down in our *Guide* there need be no fear of fighting.

H. J. FUGGLE.—The comb sent is not foul-broody at present. There is chilled brood in it, and it would not be wise to insert such combs into a hive: they would most likely generate foul brood. A heavy spraying with salicylic acid *might* prevent such a result, but we should prefer to melt them up.

LEICESTER.—There is no reason why the hives should not answer. You will find it inconvenient having them so close together. Avoid any attempt at an observatory hive arrangement if you desire surplus honey. In a good season you would get sections filled over frames if your stocks are in good heart at the right time. Use Demerara or Lyle's white pieces. Have two holes open at present. How many frames do they cover now? If they cover six you should be able to get fifteen full in seven weeks.

O. P.—Yes. You require a divider across the frame for each row of sections, *i.e.*, two.

F. DEE.—A large smoker keeps alight better than a small one. We use brown paper, but have found some sorts will not do. Glazed sorts are the most useless. If we wore rings we should certainly take them off before opening a hive, as a strangulated finger might be serious. Pea-flour is the best *substitute* for fresh pollen. You must increase the other constituents of the syrup so as to counteract the overdose of salicylic acid.

Echoes from the Hives.

Bâle, Neuchatel, March 26th, 1890.—We have most beautiful weather here. My bees are very forward for the season. I have had no losses this year, and the bees have passed the winter splendidly.—L. LANGEL.

Warbleton, Sussex, April 5th.—Have just had a look into the hives to-day: find all in good condition, save one queenless. This hive was taken particular care of in the autumn, extra stored and extra packed up, and with young queen, but she is gone—left plenty of bees and plenty of stores. I never saw the combs so filled with new honey at this time of the year before: several stocks have been apparently very short, but now almost all the combs are *full*, and in some cases sealed with new honey. This is the best spring stimulation—the bees are not deceived into believing honey is coming in, 'tis a fact, but will it crowd the queen out? Never: not if she is a good one. I have wintered several stocks in single-wall half-inch deal hives knocked up in a hurry at last swarming-time, and if any odds they are my strongest stocks now. I begin to think it is more the condition of the bees and stores than the hive that has to do with wintering safely.—HY. NEVE.

North Leicestershire, April 7th.—Prior to the last day of March bees had certainly not done more than a couple of hours' foraging: the aconites and snowdrops withered away unvisited, as did also the greater number of crocuses. A change for the better took place on the 31st ult., and a good week's work has been done on arabis, willow, violet, primrose, gillyflower, *Ribes rubrum*, and coltsfoot. Stocks are generally very short of stores and require syrup to keep them going.—E. B.

Chilton, Thame, Oxon.—Bees have wintered well in this neighbourhood. Have been much troubled with robbers. To-day (March 28th) they are very busy on the willows. On examining my hives (eleven in number) I find the consumption of stores has been very small; nothing like 20 lbs.—J. T. AMBROSE.

Examined all colonies in both my apiaries, and found all alive and in good condition, and not one queenless—this I consider a great point, with over a hundred colonies; but then my apiary consists of *English bees* only, no foreign admixture in any shape or form—perhaps that accounts for it.—JOHN WOODLEY, *Reading.*

THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

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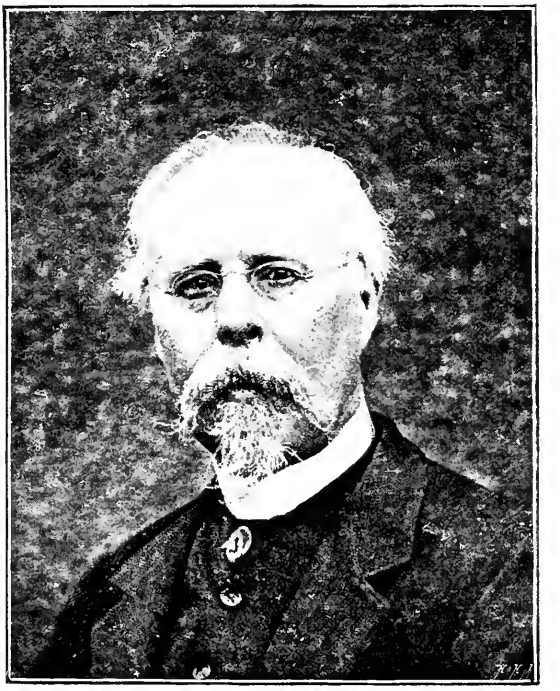
Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 25.—M. GEORGES DE LAYENS.

We have much pleasure in giving our readers this week a biography of one of the leading bee-keepers in France, who has done much to introduce and simplify modern methods of bee-culture.



M. GEORGES DE LAYENS.

M. G. de Layens was born in 1833, and in 1862 he attended a course of lectures that were given by the late M. Hamet, the editor of the *Apiculteur*, at the gardens of the Luxembourg in Paris. At these lectures there were about sixty persons present, and they assisted at the practical demonstrations which took place in the model apiary, which no longer exists.

In the following year M. Layens asked M. Hamet's permission to take the swarms in an apiary which belonged to him at Meudon, near Paris. There were sixty hives in this apiary, and it was here that M. Layens had his first experience with bees. At this time frame hives were hardly known in France, and those which were recommended to M. de Layens appeared to him hardly practicable. As he was living in Paris at this time he took advantage of the opportunity offered him to read up a large number of books on bees which were to be found in the library of the Jardin des Plantes and at the National Library. This reading, however, instead of enlightening him much about bee-keeping, only confused him. A friend of his, who knew English very well, had the patience to translate the principal articles from the first six volumes of the *American Bee Journal*. His favourite writer was Gallup, who wrote with a rare talent on all questions relating to bee-keeping. But the American hives, intended principally for the production of honey in sections, appeared to M. de Layens too complicated, when the bee-keeper's object was only the obtaining of extracted honey.

In 1865 M. Thierry-Mieg exhibited a horizontal hive, and on his recommendation M. Layens adopted this style, considerably enlarging the frames and the hive, which he considered too small. From this time he gave up all other styles of hives, and has adhered to this, only increasing the number of frames to twenty, which he considers generally sufficient in the best honey-producing districts.

In 1869 he went to the Dauphiné Alps, where he established an apiary. He remained here till 1874, and had apiaries at an elevation of 1800 mètres and 1460 mètres. Up to this time he was not acquainted with foul brood, and consequently did not take the precautions necessary to guard against it. He gave his bees combs taken from an apiary where foul brood existed, and as a result he lost all his hives but three.

About this time he wrote the first edition of his book, *Elevage des Abeilles par des procédés modernes*. This book was awarded a prize of 300 francs by the Société d'Acclimatation, and

the Société Centrale d'Apiculture presented him with the *Abeille d'honneur*. He found that a book did not give sufficient publicity to rapidly propagate modern methods of bee-keeping. He therefore published *Lettres à un Ami sur la culture moderne des Abeilles*, which appeared in several horticultural and bee papers in Switzerland, and also in several political and other papers in different parts of France.

The second edition of his work, *Les Abeilles*, which appeared some years afterwards, is a reproduction of these letters, arranged as practical lessons. This work, which is quite different from the first, was awarded a prize of 200 francs by the Société d'Acclimatation.

In 1876, family circumstances obliged him to return to the neighbourhood of Paris, and at this period he established an apiary at Louye, in Eure. It was at this place that M. Gaston Bonnier made his observations on bees and flowers, and wrote his famous work, *Les Nectaires*, in 1878.

In 1879, he commenced a series of observations and experiments on ventilation by bees; water collected by bees, &c., &c. All these observations have been published in the *Revue International*, to which M. Layens has been a contributor from its commencement. Besides his interest in bee-keeping, M. Layens has devoted much time to botany, and, in conjunction with M. Bonnier, has published several volumes on the flora of France. He is at the present time engaged on a large work which is to have several thousand illustrations drawn direct from nature.

The hive originated by M. Layens, from its simplicity and adaptability for extracted honey, is, together with the Dadant, the most popular one in France. M. Layens' object has always been to simplify as much as possible the culture of bees, as well as the appliances, so as to put bee-keeping on modern principles within the reach of small cultivators. He is thoroughly practical in his ideas, and has done much to popularise the frame hive in France. We hope he may enjoy many more years of health, to see the fruits of his exertions.

ROCHESTER SHOW.

The Bath and West of England Agricultural Society will open their annual show at Rochester, Kent, on June 7th. Prizes to the value of 20*l.* are offered in the honey and bee-appliance classes, the entries for which close on May 24th. Schedules, as usual, are to be obtained of Mr. Huckle, Kings Langley, Herts.

This, being the only large show likely to be held in the near neighbourhood of the metropolis this year, naturally points to the prospect of a good honey exhibition. We trust our readers will exert themselves to make it eclipse all previous shows. Let those who have won prizes before be determined to be more than ever to the front: on the other hand, let those who have never won a prize hasten to flesh their maiden sword. Kent, being the acknowledged garden of England, ought to be the especial home of the honey-bee. Like many other districts, it has suffered severely with foul brood, than which we know no trouble more disheartening to the beginner in bee-keeping. Mr. Pringle, of Ontario, in our last issue conveyed the gratifying information that they have carried a law against foul brood of a most drastic character, details of which he has kindly promised to forward. We have Members of Parliament among our members of the B.B.K.A., will any of them attempt something similar for this country? We are more than ever convinced that carelessness (in many cases wilful) is the prime cause of the continued spread in some districts of this dire disease.

Obituary.

We regret to have to announce the decease of that veteran Italian bee-keeper, Dr. Giovanni Bianchetti, of Ornavasso.

We gave a biographical sketch and portrait of this eminent bee-keeper on page 515 *B. B. J.* for last year, and we little thought at that time that we should be so soon called upon to mourn his loss. Dr. Bianchetti passed away on the 12th April, at the age of eighty-two years, after a long illness and suffering borne with much patience. By his death Italy loses one of its noble characters, for Dr. Bianchetti was beloved by all who knew him, and bee-keeping loses one of its most ardent supporters.

We tender our heartfelt sympathies to the bereaved family, and grieve for the loss they and bee-keepers have sustained of a man so good in every way.

REV. J. LAWSON SISSON.

I have just seen a copy of the *British Bee Journal*, and I find in it an admirable likeness of a Norfolk clergyman, well known to the readers of this journal, the Rev. J. Lawson Sisson. The editor gives insertion to a characteristic autobiography of my venerable friend, whose 'undying love' for the bee is proverbial, not only in Norfolk, but all over England. The taste of Mr. Sisson for all things quaint and curious, and his zeal in the exposure of popular delusions, are well known to my readers. I advise those who would desire to see the *vera effigies* of a gentleman who has sometimes, I believe, put them into good humour, and sometimes, perchance, out of patience, with what he modestly calls his 'egotistical twaddle,' should procure the *British Bee Journal* for April 10th. He is the prince of good humour. His every sentence has a merry twinkle in it. May he live long in his hermitage in the 'green solitudes' of Edingthorpe to dogmatise on bees and enjoy his chat and his laugh among his Norfolk neighbours.—*Eastern Daily Press.*

CATALOGUES RECEIVED.

Messrs. Abbott Brothers, Fairlawn, Southall; Messrs. Hutchings Brothers, St. Mary Cray, Kent.

Foreign.

AMERICA.

We have received Bulletin No. 4 of the Agricultural Experiment Station of the Rhode Island Agricultural School at Kingston.

In this Bulletin the apiarist gives much information about bee-keeping, and reports the work done in this department the first season.

Quotations from crop and other reports of the U.S. Agricultural Department are given, to show the importance of this industry in the United States.

Old-fashioned bee-keeping is compared with modern management, its improved hives, and better varieties of bees.

The value of bees as honey and wax producers is shown, and their greater value as carriers of pollen from flower to flower, thus fertilising and and causing the fruit to set and mature, is considered, and many opinions and facts presented.

The desirability of the cross-fertilisation of flowers and the aid rendered by insects in this way is shown, as well as the adaptability of the honey-bee to the flowers of the most important fruit and vegetable crops dependent upon insect visits.

The question as to whether bees injure fruit is presented, the opinion of the Government entomologist that they do not, and an account of the careful experiments carried out under his direction to settle the matter is given. The views of Professors Packard and Gray, as well as of prominent fruit-growers in Rhode Island, are also given.

Attention is called to the decision of the Supreme Court of Arkansas as to the unconstitutionality of prohibiting bee-keeping, also to laws lately passed in Germany which give all landowners the privilege of keeping bees anywhere, promises protection by civil right and law, as well as punishes the destruction of bees by poison or any other way by a fine, or imprisonment for one year.

No one need refrain from keeping bees on account of opposition due to ignorance, fear, jealousy, or the ill-will of their neighbours, though all reasonable precautions should be taken to prevent accident.

An account of the work done at the Station during the limited time allowed for it is given. A yard of ten colonies was established and made as near as possible a model working apiary. The desirable varieties of bees were procured, a daily record taken of a hive on scales, a show of bees in glass hives made at the county fair, and a collection of the different kinds of hives, fixtures, &c., used by prominent American producers, and designed as a permanent exhibit at the Station, was commenced.

Sixteen colonies were prepared for winter, three placed in the cellar and the rest packed in outer cases on their summer stands.

The work at this experimental Station is in charge of Samuel Cushman.

Gleanings.

In the *Australian B. K. Journal* is the continuation of the reprint of *Modern Bee-keeping* and an article by Mr. McKnight, taken from the *B.B.J.*, but without quoting its source.

In the *Indiana Farmer* we find that at the Indiana State Bee-keepers' Convention, speaking of the best method to get comb honey, G. C. Thompson said that his method was the result of careful study. To secure a large crop of comb honey, strong colonies must be secured. The hive must be full to overflowing with bees. A weak colony may give fair returns of extracted honey, but will not work in the sections so as to be profitable. The hive should be constructed to be easy of access in all parts at all times, and capable of being contracted and expanded at will, as circumstances may demand. The surplus cases should be easy of manipulation. The colonies must be kept strong during the entire year; swarming must be prevented, for when bees swarm they do not store as much honey as those which do not swarm.

G. W. Demaree says, in the *American Bee Journal*, that honey is a combination of sweets, and has non-drying qualities not found in the chemically prepared sugars; and hence it has no equal as a sweetener in the culinary arts, and as an adjunct to bread it is the most pleasing and healthful sweetener in the world. It is the purest, and the best, and the safest sweet used for food by the human race.

In *Gleanings*, R. L. Taylor describes how to to find queens quickly. He says he provides his hives with some sort of perforated zinc honey-board, then, when he wishes to find the queen, he smokes the bees at the entrance and drums on the back of the hive just enough to alarm them, so that they will commence going up through the honey-board. It seems that the queen starts very quickly under the influence of alarm like this; therefore, all there is to do to find her is to prise up the honey-board and turn it over. She will be found on the under side, trying to get through.

Writing about the assertion that wooden combs would prevent swarming, G. W. Demaree, in the *Bee-keepers' Guide*, says he can safely say that if the wood combs enable the bees to prosper on them, build up strong and flourish as on natural combs of beeswax, they will not hinder swarming. He has often tried the experiment of suppressing the drones in a large number of hives, and he emphatically asserts that the presence of drones in the hive, or their absence therefrom, has little to do with the swarming impulse.

Preussische Bienenzeitung. Editor, Mr. Kanitz. 1890. No. 3.—Mr. Frucht, a pharmaceutical chemist, manufactures ventilating plates for beehives in winter, composed of nine parts of gypsum and one part charcoal dust.

REVIEW OF GERMAN BEE JOURNALS.

By J. Dennler.

Bienenvater (Vienna). 1890. No. 1.—The editorial department of this journal passed into the hands of Mr. Anton Pfalz, of Deutsch-Wagram, the well-known publisher of the *Spurbienen*, on the 1st January last. No. 1 contains an excellent article on the 'Symbolic and the Products of Bees,' as well as a humorous tale for New Year's Eve, in which hives of bees are made to play an important part, being represented as transforming an habitual frequenter of the public-house into an excellent husband and father.

No. 2.—From an article headed 'Various Expedients to Advance Bee-keeping' we extract the concluding summary of the writer, who considers that bee-keeping may be advanced—

1. By theoretical and practical instruction in bee-keeping.
2. By suitable and inexpensive hives, which every bee-keeper ought to be able to manufacture at home.
3. By bee-keepers combining to form an Association having for its object to obtain higher prices for their honey and wax.
4. By improving bee-pasturage through a more extensive cultivation of the best honey-yielding plants wherever a piece of ground is available.

No. 3 announces the death, on the 16th of February last, of Mr. Eduard von Lacher, who originated the masterly bee diagrams—'The Brood Stages of the Bee.' Director Drory, of Vienna, has introduced into his apiary the plan of raising the temperature of the air in the hives. He does not, however, use Carbon-Natron stoves, but generates the heat by a number of iron pipes fixed against the back wall of the apiary, and filled with hot water. These pipes, which, in a fivefold spiral arrangement, cover almost the entire wall, are at a distance from the colonies of about 1½ mètres (nearly five feet). The entrances of the hives are open, and the windows in the latter are about two to three inches from the combs, which Mr. Drory considers an excellent mode of ventilating the hive, in which there is not a trace of mould or moisture. The temperature between the combs is raised to 30° C.=86° F.

In No. 2 of the *Deutscher Bienenfreund*, Dr. Oscar Krancher explains the tones caused by the vibrations of the wings of our honey-bee. Humming in the musical tone of *a*, its wings vibrate 440 times a second, and only when tired out after a long flight the tone become lowered to *e*, which represents 330 vibrations per second. When the number of vibrations is reduced to 190, the humming is over an octave lower than the note *a*.

C. J. H. Gravenhorst's *Deutsche Illustrierte Bienenzeitung* (1890. No. 4) contains a biography and portrait of Mr. F. H. Ilgen, professor of the Training College for Schoolmasters. Mr. Cowan's saying, that there are nowhere more zealous and able bee-keepers than among the clergy and schoolmasters, may almost serve as its motto. An article entitled 'A few notes on Bee-keeping in Russia' gives some interesting information on the state of bee-keeping in that country. In the North of Russia Mr. Zoubareff, the present editor of the *Russian Bee Journal*, takes a great interest in bees. Combining the Cowan hive and the American hive, he has constructed a hive under the name of the Anglo-Amerikanska, which he recommends as the best hive yet invented; he discards all other hives. In central Russia a Mr. Podolsky is known as a bee-keeper, being almost the only one who manufactures comb foundation, which he sells to purchasers at one rouble per pound. In Russia the honey offered for sale is chiefly pressed honey, and not quite free from impurities, consequently it cannot be so delicious in taste as better kinds of honey obtained by allowing the liquid to run out of the combs. For this a very high price—from fifty to seventy kopecks per pound—is paid in the large towns. In Russia Minor honey is used in large quantities in the making of mead, without which beverage no festival in commemoration of the consecration of a church is celebrated.

Der Bienenvater aus Böhmen. Editor, Mr. Hans Schusser. 1890. No. 1.—President A. Schmidt, pfarrer of Meckl, died from apoplexy on the 5th of December, 1889, at the early age of forty-four. By his death the Bee-keepers' Association has suffered a heavy loss.

Estate proprietor, Mr. H. Ecke, discusses the question, Why it is necessary for bee-keepers at the present time to pay more attention to the produce and sale of honey for their returns than looking to wax for that purpose, as heretofore? Wax is now being adulterated with cheaper substances, and the price in consequence has fallen from M. 1.20 to M. 1 (1*s.* 9*d.* to 1*s.*) per pound. In exceptional cases it may be possible to obtain M. 1.20 to M. 1.30. The substances used for this adulteration are chiefly ozokerit, sometimes vegetable wax, such as carnauba wax, a resin obtained from the trunk and leaves of the carnauba palm (*Copernica cerifera*) of Brazil. During the last ten years a vegetable wax has been imported into Marseilles, to which a great deal of attention has been drawn. It is obtained from the so-called wax-tree or waxberry shrub (*Myrica cerifera*) growing wild at the Cape of Good Hope, and extensively cultivated in Algiers and Tunis. The dark ripe berries are covered with a waxy crust, and are collected from April to November. These berries are boiled with water in an iron vessel until the fatty parts rise to the surface, when they are removed.

In No. 2, Mr. Hoppe warns bee-keepers against raising the temperature in the hives according to the method of Weygandt. The article is cautiously written, and begins with the motto,—

'Du lieber Gott, in Gnaden,
Bewahr uns nur vor Schaden.'

(By thy mercy, good Lord, preserve us from harm.)

Associations.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee meeting held at 105 Jermyn Street, on Tuesday, April 15th. Present—Mr. T. W. Cowan (in the chair), Hon. and Rev. H. Bligh, Captain Bush, R.N., Captain Campbell, Rev. R. Errington, Messrs. J. Garratt, W. H. Harris, W. Lees McClure, Rev. F. S. Sclater, Rev. J. L. Seager, and the Secretary. Letters were read from the Treasurer, Dr. Bartrum, Rev. F. T. Scott, and Mr. Andrews, regretting their inability to be present.

On the recommendation of the Finance Committee it was resolved: 'With the view of creating an additional interest in bee-keeping, more especially in schools, the price of the Association's diagrams be reduced to 2*s.* 6*d.* per set to members of the Association and 4*s.* per set to non-members; the price of the small pamphlet on the management of skeps, both in English and Welsh, to be reduced to 6*d.* per dozen.

The Chairman presented a number of books to the library, purchased from the library of the late Rev. G. Raynor. Resolved, that the best thanks of the Committee be given to the Chairman for his handsome gift. The Chairman presented a report of the present condition of the library, recommending that some of the books be rebound and other improvements effected. Resolved, that an estimate be prepared of the probable cost of the work proposed.

KEROSENE OIL FOR BEE-STINGS, ETC.

Our common kerosene oil, the kind burned in lamps, will kill ants, eggs and all; every one that it once covers is defunct. A few drops on the hives, or in the cracks of the hive, will keep the ants away. I also use it for bee-stings. I extract the sting in the usual way, by scraping, and put a few drops of oil on the wound, and work some into the same. It kills the pain and prevents the swelling. I keep the oil in a small, spring-bottom can (sewing-machine size), and it can be injected into cracks and crevices of the hives.—M. L. Spencer.—*American Bee Journal.*

STARCH SUGAR IN HONEY.

Hager (*Jour. Chem. Soc.*) proposes the following test for the presence of starch sugar in honey:—Dilute the honey with three volumes of water, and filter; introduce four c.c. into a test tube, add six drops of a ten per cent solution of mercuric nitrate, then four c.c. of absolute alcohol. If the honey is largely contaminated a precipitate gradually falls on standing; but there is only an opacity with small proportions. Hager also finds that if some of the solution of honey is put into a test tube and alcohol poured upon it so as to form an upper stratum, the development of a milky opacity at the line of contact indicates the presence of sugar.—*American Bee Journal.*

THE SPREAD OF BEE-KEEPING.

Some Astonishing Figures.

The firm of Chas. Dadant & Son report having made and sold 59,551 lbs. of comb foundation during the season of 1889. Of this, 34,498 lbs. was brood foundation, and 25,053 lbs. surplus foundation.

The 34,498 lbs. of brood foundation could fill 210,520 Langstroth brood frames, or 21,052 ten-frame Langstroth hives; and if only one-inch strips had been used, there would have been enough to make guides for 168,416 hives. This number of sheets, $8 \times 16\frac{1}{2}$ in., if piled on top of one another, would make a pile 2924 ft. high, or nearly three times the height of the Eiffel tower. If placed at the end of one another, they would make a line nearly fifty-five miles in length.

The 25,053 lbs. of 'thin' and 'extra thin' foundation would fill 2,605,512 sections $4\frac{1}{4} \times 4\frac{1}{4}$ in. This will give an idea of the extent of the production of comb honey in the United States, for most for this comb foundation has been sold in this country, and the greater part of it has undoubtedly been used the present year. Let it be remembered that, although this firm are the largest manufacturers of comb foundation in the world, they are by no means alone, and, outside of a number of other manufacturers, there are hundreds of bee-keepers who make their own comb foundation, even if their number is more limited than it was at first.

This 25,053 lbs., if cut into sheets the right size for $4\frac{1}{4}$ sections, and the sheets piled upon one another, would make a pile 16,702 ft. high, or over three miles; or, if placed at the end of one another, they would make a line of beeswax 154 miles in length.—*American Bee Journal.*

SWEET-LIPPED FARM-SERVANTS.

In the Aberdeen Sheriff Court, before Sheriff Brown, Archibald Skene, farm-servant, Whitehills, Monymusk, was charged with having, on the 18th ult., stolen 20 lbs. of honey from two hives in the garden of Glenton Croft, Monymusk, belonging to Robert May, and with having destroyed the honey. He pleaded guilty to the charge of having destroyed the honey, and this was accepted. Mr. Simpson, on behalf of accused, said this was one of those foolish escapades that country lads indulged in. He had got a little drink, and went and unfortunately destroyed the honey. He was only seventeen years of age. The Sheriff: 'Did he receive no punishment on the occasion?'—(laughter). Mr. Simpson: 'Yes, my lord, he was pretty well stung'—(renewed laughter). The Fiscal: 'Then the punishment was not very equally distributed. There were two others with the accused, and they were sick for two days from eating the honey'—(laughter). The Sheriff, having remarked that it was fortunate for the accused that the Procurator-Fiscal had seen it to be his duty not to press the charge of theft, ordered Skene to pay 10*s.*, or go to prison for three days.—*Aberdeen Evening Gazette.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see* 1st *page of Advertisements.)*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

BEE-HOUSES.

[155.] The advantages of having one's hives under a roof, and in such a house as Mr. Gibbins describes—single-walled hives, no covers to be put on, and to be blown off, and to become leaky; no need of perpetual painting, dry storage for spare hives, combs, &c., having only one stock of bees at a time to do battle with during manipulations; ability to extract without troubling the women folk in the house, and thereby disturbing their equanimity—truly the advantages are many and important, and the consideration of them almost inclines me to abandon altogether the keeping of hives in the open.

Good, however, as Mr. Gibbins's bee-house is, I believe it to be capable of improvement. The first thing that I dislike in Mr. Gibbins's house is its facing both ways. Looking as his hives do east and west, they get during winter very little direct sunshine at their entrances, and, as a result, get fewer cleansing flights than they would get were the hives looking south. In such a season as we have just passed through, with its frequent mild days, it mattered little what aspect a hive had; but in a severe winter, with but a few fine days, and those at long intervals, I fancy that the odds in favour of a hive that looked south rather than east or west would be considerable.

My next objection is to the second row of hives. An arrangement which necessitates the use of a pair of steps in manipulating stands, in my estimation, is at once condemned. Mr. Gibbins is an advanced bee-keeper, and as such does not, I presume, content himself with giving his stocks less than three or four tiers of frames, or their equivalent in frames and sections. In such cases, how, without infinite trouble, can he manipulate at such a height? With four tiers on he would have only just enough room between the topmost one and the roof to lift out a frame. Work under such circumstances would be decidedly uncomfortable, and would, moreover, have a spice of danger connected with it.

My last objection is to the size of entrance, as described by Mr. Gibbins. The width of his porches is eleven inches. From this, and from looking at his sketch, I imagine that his entrances are not more than about four inches wide—manifestly a space much too limited for a strong stock in the height of the season.

Were I to determine on building a bee-house, I would, with my present small stock of knowledge and experience, proceed on somewhat different lines from Mr. Gibbins. In the first place, I would have all hives facing south, or as nearly so as the surroundings permitted. In the second place, I would have, as Mr. Gibbins has, a double row of hives, but with this difference: that whereas he evidently uses the ten-frame pattern of hive, I would use one of twenty, thus giving ample room in two storeys, and consequently allowing the shelf of the second row to be placed at a distance of about two feet six inches from the floor.

My third amendment (?) would be to have the porch and the tunnel the whole width of the hive, using sliders for contraction, preferably inside, between the tunnel and hive.

I feel that I am somewhat rash in venturing into the discussion of this matter, but I trust that my temerity will be overlooked in consideration of my good intentions.

Heating bee-houses by hot water, as is the practice of one correspondent, is a plan not likely to be generally adopted, unless one could look after the heating apparatus by deputy. The disagreeableness of tearing away from the arms of Morpheus, and tumbling out of bed to attend to the fires, would be greatly mitigated were this duty performed by somebody else.—EAST GLAMORGAN.

GLASS SECTIONS.

[156.] Some time ago there was a good deal of writing, &c., about glass sections, and one would suppose they were going to supersede the timber ones entirely, but latterly we have heard nothing of them. Would some one who has given them a fair trial give us his candid opinion about them, and, if favourable, where they can be had, as I have never seen them advertised?—F. JELLICO.

[It is not probable that we shall hear much more about glass sections. They may do for amateurs to exhibit at shows, but we do not think commercially they are of any value whatever.—ED.]

EXPERIENCES IN BEE-KEEPING IN 1889.

[157.] My former experiences were given in the *British Bee-keepers' Adviser* for July. I will now continue them. I started the season with three stocks, two of them frame hives, and one straw skep. The No. 1 frame hive I supered with a sectional crate of 21 lbs. In a week or two they began working all right, and stored honey. When I looked to see if they wanted more room, I found the queen had started four sections of drone brood in the super. I took these away and put on queen-excluder, but they swarmed in about two days, and such a swarm as no one in this part of the county ever saw. I had some large straw hives, one of which would not contain the swarm. The bees by

themselves at night weighed a full 7½ lbs., which is 2½ lbs. more than is given in the *Guide-book* by Cowan. I left them in the straw hive all that night, propped up over a table-cloth. I had a hollow trunk of a tree given me, and in this I fitted a bottom and put in a box to hold nine bars, standard size, with a natural entrance in the trunk. I got up and put them in this at five o'clock the next morning, as I had to be at work at six, so had no alternative but to put them in then or never. I could not get them all to go in, so I put on a crate of sections, and they soon all went in. I looked at them when I came home in the evening, and found they wanted more room, so put on the one off the old stock, which had a little in it. I then left them for three weeks, and then I went and took thirty well-filled 1-lb. sections. On the following day I took twelve of them to the largest show in the county and obtained second prize for them, and sold all the honey at one shilling per pound. That colony of bees practically turned me in thirty shillings' worth of honey and a ten-shilling prize in three weeks. I received about another 15 lbs. from them in the season; but it was wet the rest part of the season here. The old stock threw a cast a fortnight later, and that I gave away, and had 20 lbs. from the old stock, and they are now in a good condition. I may here state that my hives are all ten-bar standard size, except the rustic one.

The No. 2 frame hive I put bell-glasses on, but they swarmed and I hived them into No. 3 frame hive, which gave me a surplus of about 20 lbs. extracted. I had from old stock one nice bell-glass, about 8 lbs., which I sold, and about 22 lbs. of extracted from frames. This lot also cast, and I sold the cast for ten shillings.

The No. 1 straw hive swarmed, and I gave those away and put on bell-glasses on the old stock, which they filled full of comb and a few pounds of honey, but not quite full.

On the whole we had a very fair season last year about here.

About six weeks since I had to shift all my hives about one mile, owing to a change of residence. They all went very well except the rustic hive, which we brought on a hand-truck. The bees escaped in coming, and we began to think we should have to leave them on the road. The others we brought on a hand-barrow. I have three frame hives, one rustic hive, and one straw skep to start the season of 1890, if they all survive. I have had a good sale for honey, having sold all I had and about 50 lbs. for brother bee-keepers besides. I have another large hollow trunk, which I shall make into a hive to hold either 44 bars or 22 bars and four supers. I think it would be a good thing if we could have a dépôt for bottles; I would be a purchaser. The screw-cap bottles which I used are too dear for ordinary use. I wish we could get some cheaper, to hold exactly 1 lb. It would save a lot of trouble in weighing. Wishing you all every success for the coming season —Mark J. Southam, *Mercer Farm, Kingswood, Aylesbury.*

TITS.

[158.] I saw in the last number of the *B.B.J.* a little more about the tits (No. 149), and your correspondent is quite right when he says that it does not take long for a couple of old hands to destroy a 'colony.' I myself have been much troubled with them, having lost two or three stocks a few years back: I do not mean all in one year, but occasionally one, and others very much weakened, although I have trapped and shot large numbers of tits. I have had the same trouble over and over again every winter, and as I have been in the habit of having a few bees in a friend's plantation some distance from my home, and where the tits much abound, they always did a great deal of mischief by occasionally destroying a stock and always very much weakening others, notwithstanding I have tried many ways of frightening them from the hives. I have sometimes tied dead tits suspended to a string along the front of hives, but to no purpose; and as I could not get there enough to trap or shoot them, they have had it all their own way until the past winter. I quite think I have done them at last, and still let them live and have their liberty, and do the good part of destroying other insects, &c., and not be molested in any way for all they can do to injure the bees. I placed a tit-excluder in front of hives away from home when packed up for the winter, and went on making more for those at home (at the same time trapping and shooting as many of them as I could), until I got enough to supply each hive with excluder, and I have not had any trouble since the 14th of January, when I shot the last tit and supplied the last hive with excluder. The tits came round about hives as usual and sat in trees watching, and no doubt pining to see that they were excluded from their daily meal on the bees. But this did not last long, for they soon found that it was no use to wait, and I have not seen one in my apiary since, and I have never had my bees in so good a condition before as they are this spring—and as to those away from home, where the most trouble was, I must say that I never saw bees in such splendid condition. They are now very much crowded on eleven standard frames, and most likely before this appears in print they will require two more each; and I have twice cut out queen-cells from one hive this spring. I may just mention that I have never been an exhibitor at any of the honey and bee-appliance shows, but I do intend to do so this year, at least at the Bath and West of England Show, which is to be held at Rochester this year, where I propose to exhibit a hive with this tit-excluder attached, and various other things connected with the hive, both for summer and winter use. Of course, the tit-excluder is not wanted in the summer-time, when it is easily detached and put away until another winter. I do not make anything for sale, neither is anything connected with my hive patented, so it will be free to all those who may think anything worth trying.—C. H. W.

FRAME-MAKING.

[159.] I find that some bee-keepers have some difficulty in making their own frames, while others say, 'Who would take the trouble to make their own frames, when they can be bought so cheaply ready made?' But when you require twenty or thirty frames for a hive, it soon runs into the *shillings*, and this to many working men is a serious expense. I was fortunate enough to see in *Amateur Work* (I think Vol. I.) instructions how to make a bar-frame hive and bars complete. As the method of making the frames is so simple, I venture to describe it to you for the benefit of my brother bee-keepers. The first thing is the cutting of the strips. I get a cutting gauge, which is similar to a *marking* gauge, except that the shank is stronger and fitted with a movable blade, a piece of steel a $\frac{1}{4}$ in. wide, about $1\frac{1}{2}$ in. long, and held in place by a wedge. This may be bought for a shilling, though I made my own. You then get some dry soap or starch boxes, or anything similar, and these can readily be cut into strips $\frac{7}{8}$ in. or any other width, by drawing the gauge at first lightly along, then more heavily, taking care to push the gauge in the direction in which the grain leads off *from* the edge, or it may turn you out. With this I have no difficulty in cutting straight-grained wood as much as $\frac{5}{8}$ in. thick. Of course you draw it along *both* sides and cut part way from each side. Having cut the strips, I get a block on which to nail them together. It is made of inch board 18 in. × $8\frac{1}{2}$ in. At each end is a piece nailed across; these are 2 in. wide by $\frac{7}{8}$ in. thick by $8\frac{1}{8}$ in. long for $\frac{3}{8}$ in. top bar and 14 in. between. One end is flush with the edge of the board, the other $\frac{3}{8}$ in. from edge, to allow top bar to project. Tack on a small block of wood to allow the proper length for top bar; if for $15\frac{1}{2}$-in. bar, $\frac{3}{4}$ in. from inner edge of the end pieces, or $1\frac{1}{2}$ in. from edge if for 17-in. top bar. In the centre of the block you screw on a piece about $13\frac{1}{2}$ in. long, $\frac{3}{4}$ in. thick, and $1\frac{1}{4}$ in. wide, which works on the screw in the centre as a pivot. You place the upright ends of your frame in position, then turn the centre bar straight along block. This holds them firmly in their place while you lay on your top and bottom bars, and nail with 1-in. or $1\frac{1}{4}$-in. thin wire nails. I hope I have made it sufficiently plain and that it may be useful. The cutter of the gauge is mitre-shape, to cut either way.—Geo. Adey, *Woodville.*

AFTER-SWARMS.

[160.] I quite agree with Mr. Abbott (page 158) so far as the first part of his letter is concerned. I am not one of the skeppist class. The cast alluded to was not mine, but belonged to a neighbour. There are many bee-keepers round here, and I am pleased to help them in any way I can. About the last week in March I saw some combs built by a cast in a hollow tree. The first two combs were all drone comb; the third some, and the fifth a lot of drone comb also. They were not mine: I should never think of putting bees in such a place. Bees will generally build comb *across* from entrance to back (casts I mean). When does the young queen get fertilised? When the first swarm leaves the hive, all the old bees and all the drones leave the hive, and when they are all hived and settled down most of the drones go back to the old hive, and then comes the cast as soon as one of the young queens is ready. Then all the drones go with the young queen and are hived. This queen is not fertilised, as we all know. If a few dull days follow she cannot come out: a few workers may be coming out just to keep them going, and they will commence to build several frames; the first two or three all drone comb, and if she does not come out she will lay a few eggs, but they will all be drones. To make sure of this look into a cast and see which brood is sealed up first (if they commenced worker comb first they would have worker brood sealed first), but they have drone first, unless the cast flies away; then, perhaps, the queen may get fertilised whilst the swarm is on the wing. Skeppists may turn their casts into fresh hives about the third or fourth day, because, if the weather is fine, she will be fertilised, and the cast will then build worker comb. If they do not fill the hive the first year, they will the next season fill up with nearly all worker comb.

I know Mr. Abbott to be clever, but, perhaps, some one of whom we have not heard may be equally so. I should be pleased to get any further information. In the meantime I stand by what I have seen and proved. I should much like to have a chat with Mr. Abbott, in which case you might hear more about casts.—H. Seamark, *Willingham, Cambs.*

FEEDER FOR PEA-FLOUR.

[161.] I have taken the liberty of sending you a most simple, effective, and inexpensive arrangement for giving pea-meal to bees. It is a 7-lb. can that has contained soft soap. You will observe that two cuts are made partly round it, with an ordinary can opener. Each of these is one inch from the top or bottom; they extend a length equal to the diameter of the can, and one is directly under the other. Now a third cut is made vertically, half-way between the ends of the other two. These now form two flaps; open them until they are parallel to each other, and you will then have a revolving cowl. Make a $\frac{1}{4}$-in. round hole in the centre of the bottom. In the centre of the top make a hollow or dent. Now take a piece of wire less than $\frac{1}{4}$ in. thick, 15 ins. long, drive this into a pointed wooden stake (to go into the ground), round off the top end of the wire with a file, and mount your cowl. Put into it some pine chips and pea-meal. Your cowl will always turn its back to the wind, the bees will load their baskets with the meal in sheltered comfort, and the self-acting cowl will always keep its contents dry.—Tinker.

NATIVE BEES OF CEYLON.

The principal underwood in the mountainous districts of Ceylon is the nillho. Every seven years this nillho blossoms. The perfume is delicious, and swarms of bees migrate from other countries to get their harvest of honey. The quantity collected is extraordinary.

The method of taking the honey is simple enough. The bees' nests hang from the boughs of the trees, and a man ascends with a torch of green leaves, which creates a dense smoke. He approaches the nest and smokes off the colony, which, on quitting the exterior of the comb, exposes a beautiful circular mass of honey and wax, generally about eighteen inches in diameter and six inches thick. The bee-hunter, being provided with vessels formed from the rind of the gourd attached to ropes, now cuts up the comb and fills his chatties, lowering them down to his companions below. When the blossom of the willow fades, the seed from this is a sweet little kernel, with the flavour of a nut. The bees now leave the country, and the jungles suddenly swarm, as though by magic, with pigeons, jungle-fowl, and rats. At length the seed is shed and the nillho dies. The jungles then have a curious appearance. The underwood being dead, the forest-trees rise from a mass of dry sticks like thin hop-poles. The roots of these plants soon decay, and a few weeks of high wind howling through the forest levels the whole mass, leaving the trees standing free from underwood. The appearance of the ground can now be imagined. The young nillho grows rapidly through this, forming a tangled barrier which checks both man and dogs.—Sir S. Baker *in 'Rifle and Hounds in Ceylon.'*

HOW TO MANAGE BEE-KEEPING WITH FARMING.

Bee-keeping amongst farmers is quite often looked upon as a matter of aggravation, or little profit, all things considered; for there are many of this class who even go to the bother and expense to furnish their bees with movable-frame hives, and then hive them upon the same, not even looking to see if they build straight combs, or furnish them with a particle of foundation; then the hive may be unnoticed for three weeks or more, when the operator will raise the honey-board to see if they are ready for sections, but, too late! the honey harvest is over—the sections are put on, but there is no honey and no profit.

The farmer is called from the field by his wife ringing the bell: he hitches his horses to the fence, and runs to save the swarming bees, thus leaving the hay-field, road-work, or whatever it may be: so he neither farms nor keeps bees successfully.

With the foregoing state of affairs, it would be better not to have a colony of bees on the place, for such a farmer could buy his honey cheaper.

As I farm 247 acres of land, and make a success of both farming and bee-keeping, I will tell how I do it. In the first place, I do not work my land until it grows but one-half of a crop of grain or corn; but I choose a plan different from this, and keep it quite reasonably well in grass, and grow about fifty acres of corn; so it will be seen that by this treatment, the ground is rich, hence a heavy yield of corn, good pasture, plenty of hay and young stock upon the place.

I am not compelled to go to the field every day, but can have considerable time to look after my bees. I go out and help to plough the corn the first time through, and if honey is not coming in, I keep on ploughing: thus the corn is not neglected. When the cornfield is clean, and honey is commencing to come in, my man goes right ahead with the cornfield.

When the bees are well supplied with cases, and well at work, I mow down the grass for hay; but before starting I bring some nice, light eight-frame Langstroth hives from the storehouse, and place them within reach; and as the bees are close to the back door, my wife will be sure to hear or see them if they swarm. With queen-cage and veil she starts for the bee-yard, cages the queen (all have clipped wings), puts down the smoker, and soon returns with cover and top board in one hand, and the body of the hive on the same arm, and the bottom board in the other. Any woman with ordinary strength can do this with ease. For five dollars a girl can be had for these two weeks in haying, and my wife likes no better fun than to cage queens, and place the hives close by the old ones, throwing a canvas of some kind over the old hives. The rest is left for me, when I come from the field.

During the two weeks of making hay, many of the section cases will be ready to take off. I can well afford to take a half-day to put the bee-escape boards under the section cases, and put other empty cases underneath. In two or three days I carry my bee-deserted cases to the honey-house; here will be a half-day more lost (?). Thus the white clover honey harvest, with haying, will be almost at a close, and I will have plenty of time to attend to the other cases left on. The bees will not bother much in oat harvest, as a general rule.

The grain is stacked without interference: this, perhaps, will be about the middle of August. One week after this date, heartsease begins to bloom here, and, as a rule, yields surplus; it often exceeds that of clover. At this time of year the farmer will find plenty of time to attend to the honey crop, and prepare the bees for winter's quiet.

We will say that fifty pounds of comb honey will be about the average per colony, over the United States; thus, fifty colonies would annually produce 2500 pounds, which at twelve cents per pound, would amount to $300. Twenty-six hogs, weighing 350 pounds each, will bring at present prices, $296.75. I want to say right here, that no one thing upon the farm pays me so well, in dollars and cents, as do the bees, and with no other great industry does apiculture combine better.—Frank Coverdale.—*American Bee Journal.*

Selected Queries.

[5.] *The owner of twelve hives of ten frames each (parallel and right-angled) wishes to work them on the sectional super system. Which would be the best way to proceed to secure the most favourable results?*

Sectional supering I take to mean sections, or parts of hives used for supers, which may contain section boxes 5½ in. deep, or standard frames. In each case the section should be placed first as a nadir, with excluder between the brood nest and the nadir. When the nadir is occupied by bees, we then have a *sure indication* to place it in super position, without the least chance of chilling (by too soon supering) the brood nest to the detriment of the colony. Under such treatment a stationary nadir of narrow frames will act as a safety valve against swarming, and the first-placed super is to be undertiered by a fresh section as soon as the first (or last one) placed has bees working and storing in the out-end sections or frames, such undertiering to be carried out during the honey-flow, and the whole pile of super honey taken off at one operation just as soon as the honey-flow has ceased.—JOHN H. HOWARD, *Holme, Peterborough.*

I understand that (in other words) he is going to work for sections, not extracted honey. When his ten frames are covered by bees, clap on a 21-lb. crate over excluder zinc, and another on top of this as they are filled by bees (in spite of canon to contrary) till the honey-flow is over. On removal of these many will be found unfinished, and I would use them in centre of crates upon taking the hives to the moors. If no ling honey is obtainable, extract the unfinished sections, and this small quantity will be of the very highest grade, to be marked 'Special, for own use.'—R. A. H. GRIMSHAW.

To work twelve strong hives profitably, I should wish to start the season with one duplicate hive, filled with clean worker comb or whole sheets of good foundation, and three sets of sectional supers for each of my twenty-one hives. As soon as weather permits, and before the stock hive becomes too crowded, put on a super, first making quite sure, by examination, that no queen-cells are commenced, and that there is still room for the queen to lay in worker and a little drone comb. As soon as the super is rather more than half filled, and honey is coming in well, raise the super, and put another between it and the hive. Examine, if you like, a few of the centre sections, to be quite sure the queen is not in them. After a few days more, the second super being well at work, if there is any sign of the bees being crowded below, and especially if there should be a glut of honey, take the duplicate hive, filled with comb or foundation, and place it *below* the full one—or above, between it and the super, if more convenient. This may appear to check the supers for a short time, but *as business goes on in them in proportion to the activity of the queen*, there will soon be marked progress in them as the queen takes possession of the new combs provided for her. If early or very thinly capped sections are required, the hive may now be left until these can be taken from the top super, though when *numbers* of well-filled sections are required, and if honey continue to be abundant, I prefer to add my third super now, raising those already on, and placing it between them and the hive. Then, as soon as the top is well finished, remove all the sections in it, and replace with fresh ones, again placing this as before between the hive and full super, and so on, as long as honey is abundant, or likely to be so. Should a swarm issue from any hive, and no increase of stock is required, I should remove all the brood combs from that hive, replacing them with frames of foundation, put on the supers as before, and return the swarm, and all the bees shaken from the brood combs, which I should then double above or below one of the other hives. I have always obtained the largest and best results both in sections and extracted honey from those hives which were capable of expansion either by giving another set of combs *below* or above, or by giving them gradually at the back of combination or long hives. When giving the duplicate hive, I prefer placing it *below* the full one, as I think the queen takes possession more quickly. If placed *above*, and if honey is very abundant at the time, more honey will be deposited in it than is desirable, as I want that in the sections and the extra frames for the queen only.—M. S. GAYTON, *Much Hadham.*

So many ways being advised, I will only give my experience of one strong hive last year on ten frames. I placed a crate, containing twenty-four 1-lb. sections, with full sheet of foundation, on, and as honey was coming in freely, I raised it, and put another under, in ten days after putting a third under; and by taking out and replacing filled ones when the crates were not completed, I secured just 100 well-filled sections from the above stock, and left all frames for the winter, and now (April 12th) it is the best, and apparently the most forward, stock in an apiary of forty hives.—T. SELLS.

The position of frames is immaterial. I have them on both systems side by side by the score, but prefer the parallel, with pathway at the backs of the hives for working. I should work on the storifying system, and return the swarms, taking care to keep super room ahead of the actual requirements of each colony as a preventive of swarming. I rarely have more than two supers (or crates of sections) on a hive at one time, always taking care to remove the sections as soon as they are sealed over.—W. WOODLEY.

Given that the hives are '*fit*' for supering, I would remove from each one worker comb containing worker eggs and young brood, and slip into the centre in lieu of it one frame of worker foundation. The comb of eggs and brood I would cut up and fit into three or four sections,

which I would put into or about the centre of a crate or rack of sections, properly fitted with foundation and with thin wooden dividers. I would set these on 'Abbott's speciality zinc' adapters, and put the whole, one on each hive, as quickly as possible when each was ready. When hives are not expansive, it matters little whether the frames are 'parallel or right-angled;' both are equally convenient for the bees, and in such hives inconvenient for the owners. The three or four sections of eggs and larvæ will attract the bees into the super at once, and they will do their best according to the season, and as each crate gets well occupied with bees and honey, put new ones on *the top* of those *in situ*. I emphasise 'the top' because it is often recommended that the empty super should be put *under* the partly filled one. The latter I look upon as a foolish practice, but should like to see the subject ventilated forthwith, and I therefore suggest a query.—C. N. Abbott.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

C. Marks.—The insect sent is a queen-wasp. If bees are collecting freely, you can transfer frames from one hive to another during the day. Certainly use the smoker to quiet the bees.

R. Tod.—It may be due to the zinc, but it seems to us like spring dwindling. Examine the bees, and reduce the brood nest to the strength of the colony. When you have examined your stock, report its condition, and we will try and give you advice.

H. Lander.—We should prefer No. 1. Very pleased to hear of your success.

D. Ford.—It is quite optional. We do not quite grasp your second question. Kindly send a rough sketch, and we will help you. We fail to see why the tin rest raises the section a quarter of an inch; should you not have said *divider*? Hives are sometimes painted inside with, so far as we can learn, no ill effects, except a more ready condensation of the vapour always present in a hive. The time for transferring depends entirely on the weather, and not on the almanac. It is too cold just now. Quite enough space; one-sixteenth less would have been better. Your hives are all right as to distance from ground.

Custom House Officer.—If you work on the principle you propose, the pollen the bees store in the combs will do no harm, as it cannot be driven out by the extractor.

J. Wood.—The queen sent is an old one, and died of old age. The dwindling is caused by the old bees dying off and not being replaced by young ones. The *Stewarton*, by Rev. E. Bartrum, is published by Longman, Green, & Co., Paternoster Row, London, price 6*d*.

A. B.—The bees sent are blacks crossed with one of the yellow races. Why not try apifuge for outward application and the homœopathic *Apis mellifica* inwardly?

Durham.—Frequently in the early spring a queen matures more eggs than there are prepared cells for, in which case she extrudes more than one in some of the cells. There need be no alarm.

A Reader.—To make salicylic acid solution for medicating syrup, take salicyclic acid 1 oz., soda borax 1 oz., water 4 pints.

J. Kendall.—1. On dissecting your bees we found they were suffering from abdominal distension. The intestines were full of pollen, and the honey-sac contained honey of an acrid taste, and it is probably this, together with a retention of the pollen and cold damp, that has caused your bees to die off. Keep them very warm and feed with warm salicylated syrup every evening. As your queen is in good condition keep her to introduce to another lot of bees. 2. No; if crossed with Carniolan drones they partake of the mildness of the Carniolan character.

Queries and Replies.

Query.—On examining my hives to-day, I found in two, which I opened consecutively, drones hatched out and hatching no worker brood, but in each case the queen in apparently good condition. Is there nothing to be tried as an expedient before destroying drone-breeding queens? The loss in one instance would be serious, as the queen is a purely fertilised Italian. —H.

Reply.—You can do nothing but depose the queen, and the sooner this is done, and the colony united to another having a good queen the better. Drone-breeders are the result of the exhaustion of the fertilising matter in, or injury to, the queen. There is no remedy, for when a queen once becomes a drone-breeder from any of the above causes there is no likelihood of her ever again being able to fertilise the eggs laid, consequently there cannot be any worker brood.

Echoes from the Hives.

Weston, Leamington.—It has not been very nice weather for the bees lately; the contrary north-east wind has been very bad here. I expect many bees that went out got lost.—J. Walton.

NOTICE.—We would ask our correspondents to take notice of the removal of our office, and to request them in future to address all communications relating to the literary department, &c., to 'The Editor of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*'

THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

No. 410. Vol. XVIII. N.S. 18.] MAY 1, 1890. [*Published Weekly.*

Editorial, Notices, &c.

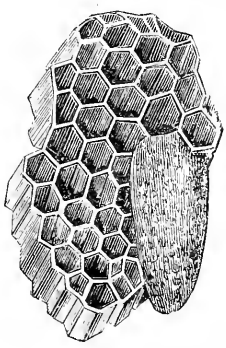
USEFUL HINTS.

Weather.—This factor of happiness in bee-life, as well as in human existence, has been showing its usual fickleness. On certain days there has been sunshine, but accompanied by chilling winds, which, were moralising allowed in scientific matters, we would liken to fair prospects of seeming outward good, with sure trouble in the background. Then there has been cloud and cold, like the advent of sorrow, followed by rain and storm, which would be characteristic enough of November, but which do violence to our traditionary ideas of what beseems mid-spring. Our bee-stocks, we fear, have been sadly troubled in many instances by the untoward elements. Strong, well-crowded stocks, with plenty of stores or with carefully supplied feeding-bottles, have experienced nothing worse than an enforced confinement indoors and rest from their pleasant labours in garden or in field. But we would once more urge the danger of such weather as we have been having to hives where breeding is in full vigour, while provision for the brood is not ample. For such stocks a proper supply of syrup will prove to make all the difference between spring dwindling and a crowded population ready to rush forth and make booty of blossoms which will literally burst into beauty with the sunshine of the coming weeks.

Prospects.—Judging from the mildness of the early part of the season, and the consequent stimulus to egg-laying on the part of the queens; seeing, also, the actual abundance of young bees in many hives, we are led to anticipate great things in the approaching honey harvest. Our belief, indeed, is that there has rarely been, by the middle of April, such general strength in bee-stocks, and so much promise of good results to the bee-keeper. Even the check which vegetation has received from chilly days and nights will prove far from an unmixed evil, if it enables the weaker stocks of our apiaries to grow into strong ones before all the glory of our orchards and gardens is upon them. But, for this happy consummation of crowded hives for the critical moment, attention must be earnestly given where food and warmth are needed. Again, too, we reiterate the advice to have every preparation made for a sudden honey-flow. Some unskilled apiarians have, as we ourselves have seen, already gone beyond the stage of being ready, and have actually put sections or other supers on their stocks. We fear that they will find they have been premature. It is worse than useless to begin supering till there is insufficient room for the ever-increasing population, but, with favourable weather, strong stocks will be ready for surplus room in a very short time. We believe, without actually committing the pleasing error of counting our sections before they are sealed, we may look forward to a most gratifying season for ourselves and our bees, *if* only the sun will but shine and cold winds stay away till late autumn, and if all preparations are duly made to receive the treasures nature (why should we not say God?) has in readiness for us.

Queen-rearing.—This branch of bee-keeping should be taken into practical consideration so soon as the rudiments of apiculture have been thoroughly acquired. Upon the fertility of the queens the strength of our stocks is absolutely dependent. This fertility is, in its turn, a resultant of two other conditions: first, age; secondly, inherited good qualities. Hence it is important to replace old or unprolific mother-bees by those in the prime of youth and vigour: and then it is of further consequence to remember the force of heredity, and to select as breeders for queen-raising mothers whose own fecundity has been well proved and is in full energy. There are two circumstances under which it is of importance to have young queens in readiness; these are, the accidental or natural loss of the 'head' of a stock, and the existence of aged or unfruitful queens in certain hives. The supply of a fresh queen to any colony is not a difficult matter in summer-time; but often is of very great importance. Before, however, giving to novices directions for queen-introduction, it will be necessary to speak of queen-rearing. The process is as follows:—Select two of the best stocks, one for producing queens, the other early drones. Into the centre of the former introduce a frame of clean worker comb; this will be speedily filled with eggs. In three days' time remove the queen and all frames with unsealed brood, giving these latter to other stocks, and if the queen is in her prime she may be substituted for one older or less prolific in some other hive. Queen-cells will be at once

begun in large numbers in the hive under treatment. When these have in them sealed royal brood, take from a strong stock two or three well-covered frames containing bee-bread, honey, and brood. Put these into another empty hive and close them up with division-boards, and cover warmly. As the old bees will fly back to their former home, brush off the young bees from two or three more crowded combs and add them to the little artificial colony or 'nucleus.' These will stay and keep the brood at the right temperature for developing. Next, from the frame containing the maturing royal pupæ, after gently removing the adherent bees, cut out very carefully a queen-cell with a piece of comb attached to it above (see cut). This must now be securely pinned to one of the frames in the nucleus, or carefully placed between two frames with its cap downwards, and then all made snug and warm again. Considerable delicacy in handling is necessary to prevent any injury to the all-important cell. We need not say that the pins must be kept well away from it. Syrup must be supplied to the bees, both because many are too young to fly, and because it is important for those who are older to remain at home, so as to keep up the temperature. It is advisable, also, to close the entrance so far that only one bee at a time can pass in or out: this is to prevent robbing. In a few days the young queen will come forth from her cell, and in another week will be ready to begin egg-laying. It is of consequence to put into the nucleus another frame containing brood before the queen takes her nuptial flight, lest all the bees should accompany her, and so the whole of the little community be lost. The multiplication of such nuclei can, of course, be made according to the number of young queens required.



Artificial Swarms.—Where an increase of stocks is desired, and circumstances, such as the necessary absence of the bee-keeper from home during the day, render natural swarming risky, it will be desirable to make artificial colonies. The various methods by which this can be effected are detailed in the *British Bee-keeper's Guide-book*, and in various other manuals of bee-keeping. Space forbids our description of the processes now. We, however, strongly commend the subject to the reading and practical consideration of those who have not before tried the expedient.

Shipping Bees to Australia.—A correspondent wishes to ship thirty hives of bees to Australia, and would like the opinion of any one who has had experience in sending bees so far, and the risks of loss on the journey.

EXTRACTED HONEY—ONE METHOD OF ITS PRODUCTION.

I do not know of any better way to write on this subject than to give my way of producing extracted honey.

I use the Langstroth eight and ten-framed hive. In the spring I build up colonies as fast as I can, during fruit-bloom, so as to get them in prime condition by the time white clover blooms; this I do by supplying the hives with empty worker comb (kept over from the previous year) as fast as needed, until they are just booming with bees.

I then put on the surplus hive or super, and put two or three empty combs in super No. 1, and two frames of brood and honey from the brood chamber, and fill the brood chamber with empty brood combs.

As the brood in super No. 1 hatches out, the bees fill the cells with honey, and also work on the other empty combs as needed until the hive is full. As soon as super No. 1 is full of comb, and nearly full of unsealed honey, I lift it off, and put in its stead super No. 2, taking three frames from No. 1, and put them into No. 2, with three or four empty frames, as the strength of the colony may indicate; I also fill up No. 1 again with empty combs, then put No. 1 on top of No. 2, observing this rule—always putting the frames, whether full or empty, in the centre of the hive, be it the same super or brood chamber, so that the cluster is not broken, but continuous from the bottom to the top.

As soon as the frames of super No. 1 are full, and two-thirds sealed over, it is extracted, and immediately put between No. 2 and the brood chamber: and No. 2 is worked in the same way, leaving the brood chamber entirely to the queen. What I mean by this is, not extracting from the brood chamber as some do. In the meantime, if I am very busy, I put on the third super, and work them as I do Nos. 1 and 2.

In extracting, the honey is put in an open-headed barrel covered with screen-wire; this takes all the pieces of comb and bees out, and keeps out flies and bees, and does not hinder evaporation. The barrel is exposed to the sun and air. The impurities rise to the top, and the honey is drawn out at the bottom of the barrel.

Managing of Increase.—I will now give my method of increase, which, if not directly, is indirectly connected with this way of obtaining extracted honey. I will also state that my bees did not attempt to swarm more than three times during 1889, and two of those swarms issued from one hive. Now for the plan of increase.

There will generally be two or three combs in the centre of the super next to the brood chamber which will be partly filled with brood; these I remove to the nucleus hives prepared for the purpose, putting three or four frames in a hive, with enough bees to keep the brood warm. This nucleus I build up as fast as possible, so as to have a full colony by the time the fall flow

begins, so that they may fill their hive for winter, and they frequently store considerable in the super. By this means I have nearly all the old bees at work during the honey-flow, as many of the old bees will leave the new, just-formed nucleus hive.

Now for the results. I began the year 1889 with sixteen colonies, and worked fourteen for extracted honey. I increased them to forty, took 2000 lbs. of honey, and they have yet an average of at least twenty-five pounds each. We had a frost in May that killed all the linden bloom, and injured other flowers considerable; also a very dry fall, cutting the fall crop off short in September—altogether not making more than about two-thirds of a crop.

Besides this, I have had a great many combs built, and have considerable surplus beeswax—enough to keep me in foundation. These last two items cannot be realised in the production of comb honey. I can sell my honey very readily at nine and ten cents per pound, while comb honey sells at ten to twelve and a half cents.—O. P. Miller, *Gleudon, Iowa.—American Bee Journal.*

THE SUNSHINE AND SHADOW OF APICULTURE.

Nearly every occupation (and want of occupation) under the sun has its sunshine and its shadows, its ups and its downs. From the king to the beggar, and from the millionaire to the tramp with not a meal of victuals ahead of him, there is the cloud alternating with the sun.

And certain it is that the preponderance of cloud in the drama of life is not always with the beggar or the tramp. 'Uneasy,' it is said, 'lies the head that wears a crown' (the head that wears a sting for half a minute is also uneasy for a time), and the 'Divinity that doth hedge a king' sometimes fails to hedge, and his regal tenure, as in the case of the present Dom Pedro, is painfully uncertain, sometimes as precarious and uncertain as the beggar's next meal.

But without further homily, we may as well admit at once that the apiarist—even the apiarist—has cloud mixed with his sun, and sometimes mixed with a vengeance. Just how much sunshine or shadow there may be in any particular case, depends much upon the particular individual himself or herself. Some people, left-handed people as it were, are always in a cloud, or hot water, no matter what business they are in or out of. They manage to raise a cloud of dust about their own eyes and ears, and although old Sol may be smiling on them from above, they see none of him, and the music of the spheres never reaches their ears. These are the pessimists. Others, again, see all the sunshine within their visual or mental range, and hear all the music Nature or Fate vouchsafes.

The bee-keeper may, however, among all others, be justly described as 'Dot happy bee-man,' of whom our American cousins, Secor and Miller, have so eloquently sung. The old saying that it is better to laugh than to cry over the misfortunes of life (even though the misfortune be a pointed one) is, on the whole, good—very good—advice, so long as the laugh carries with it the wholesome lesson of experience to avoid a repetition of the misfortune. Of course, every bee-keeper who is a philosopher as well, will bear the pointed and barbed misfortune as best he can, and try and ward it off next time.

Now, taking the bee-keepers, who are bee-keepers, all in all together, I think they have more sun than cloud in their pursuit of honey. Possibly this may be an optimistic view, and the writer may be looking through the clouds into the sun with luminous glasses. Be this as it may, he takes pleasure and pride in saying that his own apicultural horizon has been encouragingly free from clouds. In other words, he not only derives a high order of mental pleasure and profit from the pursuit, but makes it pay in dollars and cents from year to year. You may perhaps put this and that together and draw a conclusion not flattering to the speaker's modesty. This, viz., that he has not had much cloud, and that, viz., that the amount of cloud depends mostly upon the man himself. The conclusion is apparently logical enough, but does not necessarily follow from the premises. The whole matter may be explained concisely in one sentence, to wit, he always did love the honey-bee, and her sting never did hurt him to speak of. Whatever the cause—whether in nature or grace—this deponent is as nearly stingproof as one need desire and be reasonable. I can imagine our worthy ex-President Clark, or our venerable absent friend Father Langstroth, or our versatile cousin James Heddon, whose nerves and blood are, I believe, so painfully responsive to the barbed dart, exclaiming, 'This, indeed, is the cloud of bee-keeping with us, beyond even an adverse balance-sheet.' I cannot sympathise with such from experience, but I sincerely extend to them my theoretical sympathy, should that be worth anything. I tell you, gentlemen (and ladies), that I have learned not of myself, but of others—that by far the biggest cloud above the horizon of bee-keeping comes directly from the business end of a business bee; and the fortunate bee-keeper who has a 'coat of mail' invulnerable to that lance (not outside of him, but inside of him) has a tremendous advantage in the race over his less fortunate brethren. The bee-keeper, therefore, who can receive that 'business end' referred to above without flinching, and even with equanimity, and can steer clear of most of the other evils and obstacles of the business, and take the inevitable balance of ills like a philosopher, is to be congratulated, or is a fit subject for a certain amount of envy, as the case may be. On the other hand, those of us whose nerves and blood rebel against a sting, and who are not able to avert the clouds and winter losses, spring dwindling, foul brood, and others of less sombre hue, deserve not only our sympathy, but our assistance, and I propose now to give my mite of assistance in the shape of a little advice after I

have briefly enumerated the sunny and cloudy points of bee-keeping.

The sky of the apicultural novice is, as a rule, remarkably clear, in prospect at least; but when he gets down to business the clouds soon begin to gather.

On a fine morning in spring he gets his first 'skep' of bees and carefully places them in the front yard on a bench under the plum-tree. Soon he sees them sally forth in the sunshine and return laden with little golden pellets on their legs, which he joyfully regards as the 'stuff they make the honey of.' Visions of increase of 'skeps,' of honey for his table, and honey for the market to replenish his purse, come up before him, and he is happy. In due time his 'skep' swarms, and he hives the new recruits successfully. They go to work. To make a proud beginning in manipulation he now puffs with his smoker, opens the hive, and lifts an outside frame of honey from the old colony or parent skep, wings off the young bees according to the book, and goes to the house triumphantly with his prize, and makes a magnificent, mellifluous spread for dinner. He is now to all intents and purposes, 'dot happy beeman' with not a cloud in his sky. The old swarm and the new swarms go on industriously and improve 'each shining hour,' and everything is lovely with the incipient apiarist; but the whirligig of time brings its changes and its revenges. The new colony has filled up and become strong, and ready to swarm. The old skep, too, in the midst of abundance, has hustled up to the swarming-point again, and both take advantage of the sun after a cloud, and issue together. They mingle in the air in fraternal greeting, and cluster together in the top of the plum-tree.

Our amateur bee-keeper is now in a 'swither' what to do, and quite loses his head. He gets out the table, however, sets it under the tree, and spreads a white sheet over it as carefully as that over the corpse at 'Tim Finnigan's wake,' and soon to be followed by a similar 'ruction.' Then, after washing out the new hive with salt and water, and swiping it with a tansy stalk, he stands himself upon the table, holds the hive up with one hand, and with the other shakes the bees down. But they miss the hive and fall on his head and down his neck and shirt-sleeves, where the close quarters and the odour of sweat put them in fighting trim *instanter*. Horror of horrors! He drops the hive and leaps from the table in pain, with a cloud of bees about his head. With the exception of this fighting detachment, the two swarms rise in the air and make a bee-line for the woods, with our now thoroughly demoralised neophyte in limping pursuit to the best of his ability, over fields and fences, through dykes and ditches, till he loses sight of the fugitives and sinks exhausted, his eyesight by this time being none of the best, peeping out from a head dazed and of most extraordinary proportions. He rests a little, writhes a great deal, then slowly gropes his way back. This is his first cloud, and a big one it is: in fact, it is the 'blackness of darkness' to him, for now he can see neither sun nor cloud, nor anything else. We now gently leave this brother in distress where he is, with our kindest sympathies—all we can offer.

Now, the sunshine of bee-keeping, to put it briefly is this—first, to be able to take a sting without minding it: second, to winter and spring the bees without loss: third, to steer clear of foul brood; and finally, to get a crop of honey each year and sell it at a good price, and the surplus bees ditto. This is what may be properly called sunny and successful bee-keeping, and is the grand goal of apicultural ambition, but few there be that find it.

Per contra, the clouds of bee-keeping summarised are—first, a sting that poisons and pains; second, a winter mortality and spring dwindling that thins the yard; third, foul brood, mice in winter and toads in summer, ants, wasps, spiders, beetles, the king-bird, the bee-hawk, the bee-louse, robber flies, &c.; and finally, poor crops of honey and unremunerative prices.

These are the clouds, though, fortunately, they seldom bunch up together over the luckless head of one luckless bee-keeper.

In conclusion, I may be permitted, in as brief a manner as possible, to give some advice (only, however, to those who need it, and most of you probably do not) as to how to avert the biggest of the clouds and invite the sunshine.

First, as to stings. In handling bees the prime requisite is to be brave and quiet, to keep cool and handle carefully. Almost equally important is it to keep yourself scrupulously clean in person and apparel, for the bee is fastidious and ever ready to resent malodorous offences. Then, when so unfortunate as to get stung, rub the stinger out at once by a single smooth motion of the finger over the part stung, and turn the part aside from the bees for a moment till the effluvia which accompanies a sting, and which invites further attack, is dissipated.

To attempt to avoid the losses of winter mortality and spring dwindling is a big undertaking, involving an extensive knowledge of apicultural science and art as well an extended experience. We all have considerable yet to learn on this subject. The best knowledge I have at present on the subject may be stated in the main points briefly as follows:—Give every colony plenty of stores for winter (honey is best) early in the the fall (Sept.), so that they may settle down contentedly instead of wearing themselves out looking for winter food. Keep them dry and warm. Put them in winter quarters early, before cold weather. Leave lids off. Replace summer quilts by clean cotton ones, and cover over with woollen quilts or cotton filled in with wool. Keep the repository at about forty-five or fifty degrees. Be in no hurry in getting them out in the spring unless they are diseased or restless. When out, clean them, give them plenty of food, crowd them up,

pack them up warm and dry, and leave them alone through the spring, attending to them only when necessary. The winter and spring management, of which this is an outline, I have found successful.

To avoid the origination of foul brood or less formidable diseases in your own yard, attend to sanitation. Keep yard and hives clean, and never uncap or behead drones in a weak colony, where they are liable to rot instead of being carried out.

The king-bird eats queens, and drones—use powder and shot on him. Against the miller moth there are two remedies, viz., Italian bees and strong colonies of any kind.

To avoid the worry of swarming-time and the break-neck clashing of absconding swarms, keep your queens clipped; and keep back all after-swarms, as they are unprofitable as well as troublesome.

How to get a good honey crop when it is going and avoid the cloud of a bad one—this would take hours to set forth. I can, therefore, only say here, read the bee journals and the standard works on the subject; learn and profit by your own experience; and then rely upon yourself by using your own best skill and judgment.

To get a good price for your product after you have got it, certain conditions besides the market are essential. First, see that you get it out of or off the hives ripe and in good order, and then preserve it in good order—the comb honey in a warm, dry place, and the extracted, when ripe, in a dry, cool place. Keep it clean and neat, and put up with care and taste to suit your customers. Label and guarantee your product over your own name, giving brief and clear directions how to preserve properly and how to liquefy. Then wait till the market opens and a demand arises, instead of rushing your crop out prematurely and taking catch prices. Of course, in the case of regular customers, grocers, or others, they must be supplied whenever they want it, provided the honey is ripe and fit for market.

Hoping your apicultural sky may be always fairly free from clouds, and that the season of 1890 may be especially successful with you all, I am yours ever,—ALLEN PRINGLE, *Selby, Ont.—Canadian Bee Journal.*

Associations.

IRISH BEE-KEEPERS' ASSOCIATION.

The annual general meeting was held at Trinity College, Dublin, on the 10th April. The Report and Balance-sheet for the year 1889 were received and adopted. The Registrar-General was warmly thanked for the collection and publication of statistics on the subject of bee-keeping. Certain alterations and additions in the forms were suggested. The Earl of Rosse was added to the list of Vice-Presidents. This distinguished nobleman has long been a member of the Association.

A meeting of the Committee was held on the same day, at which a special committee was formed to investigate the efficacy of formic acid as a remedy for foul brood, as advocated lately by Mr. Sproule in the *Bee-keepers' Record.*

LOWESTOFT B. K. A.

The annual meeting was held on the 17th April in the Public Hall, Lowestoft, Mr. L. T. Peto in the chair. The Report shows a credit balance of *7l.* 13*s.* 2*d.*; that the year has been fairly good, and that, owing to the recent mild winter, more stores have been consumed, but where stocks were in good heart and well provisioned they are now very forward.

After the election of office-bearers, the Hon. Secretary read a paper on 'Management of Swarms for Profit,' which is published *in extenso* in the *Lowestoft Journal* of 19th April, and should prove of considerable use in the district.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see* 1*st page of Advertisements*).

SELLING HONEY, ETC.

[162.] If you can spare me a small space in your valuable paper, I should like to thank you and many able correspondents for the great assistance it has rendered me. I became a bee-keeper about four years ago, and by the aid of the *B.B.J.* am now the owner of twelve stocks. I commenced with only two stocks, and the first year's return covered my original outlay. The year 1888 was a poor season, but last year I realised 13*l.* worth. One stock gave 113 completed sections and seven incomplete—a weight of 118 lbs. I therefore feel I have something to thank you and the *Journal* for. My success will encourage others, I hope.

I have further a word to say about selling honey. I read the remarks on the subject in a recent issue (144, p. 185) with great interest. I am quite in agreement with the Associations, and should long ago have joined, but seeing that nothing is done by the Associations towards securing a market for their members' produce, I considered it not worth the outlay for membership. Last year I sent a large quantity of honey to Manchester, but now that the British and Irish Honey and Wax Company seems to be getting settled on a firm basis, I certainly think it should be encouraged. Make the Company one of *bee-keepers* working for bee-keepers'

interests. I, for one, think there is a bright side to the cloud which has overhung the commercial side of bee-keeping.

There is every prospect of strong stocks this year; mine never looked better, and are breeding at a terrific pace. May 1890 be prosperous!—HENRY JENKINS, *Water Works, Royston, Cambs. April 22nd*, 1890.

MEMS. TO YE EDITOR.

[163.] Editors are of different strains—some waspy, and some aren't so. Ye editor of *B.B.J.* seems to be a right good sort, patient, courteous, and busy. I *would* like to shake hands with him. For all I know I have to thank the *Journal*, and for all the good received I heartily give thanks. Now I've just a jot to say—don't know whether it's worth your while to heed—but I saw a mem. of yours that good sugar can't be got for less than 3*d.* per lb. Small buyers can get it at less. Let them go to their grocer, or to any *good* grocer, and buy the dust from the bottom of the lump-sugar cases and drawers; it's soiled and has bits of chips in, but boils up fine. I only pay 1*d.* per lb. for Tate's *cubes, black* brand (dust).

To dispose of honey. Get hold of a commercial traveller, give him a nicely packed sample to sell to grocers at 9*d.* Give traveller commission. If you can't get hold of a decent traveller, give it to your grocer to give to one. In the latter case the sales will probably be larger! Watering-places ('To Boarding-house Keepers') are worth advertising. Advertise you must, or else you'll bust!

I see, on looking over notes, that you say, *re* inverted skep under bar-frame—'Bees will go up when brood is hatched out.' That explains a failure of mine. I inverted a skep, and kept it so for two weeks; then, as bees were not up, and things were at a standstill, I turned it right side up, and then they did go ahead. I'll try the experiment again as soon as we have good weather. Furnish them with fully worked-out combs above. All is progressing well about here. —T. A. S.

WATERPROOF COVERINGS.

[164.] Please allow me a few lines in the *B.B.J.* As 'Useful Hints' advised, and strongly too, the removal of all waterproof sheets from our hives, I ask, 'What for?' Will waterproof sheets produce mouldy combs after the middle of April? I say not. But if any combs have become mouldy in winter or early spring, and I mean before April sets in, I would remove such combs by all meaus; but I should not think of removing my waterproof sheets after the middle of April to prevent mouldy combs, because I have never known them to get so after April. I would much rather put on waterproof sheets now than take them off. And if your readers would refer to the *B. B. J.*, February 14th, 1889, they will find that 'Useful Hints'' advice is the putting on of waterproof sheets. What will the cottager do with such contradictory advice? I hope he will do as I have done for the last few years—be guided by his own judgment and act upon it.—CHARLES EYLES, *Box, Wilts.*

[Our correspondent has evidently not understood the purport of our advice with respect to waterproof coverings. Our remarks were given from experience, and there is no doubt many hives are suffering from the improper use of waterproof coverings. Many bee-keepers forget that besides the enamel cloth the tops should be covered with several thicknesses of felt, or warm woollen material, to prevent the great amount of condensation of moisture that takes place in the spring owing to the activity of the bees. If this covering is not supplied the enamel cloth does an immense amount of mischief, and causes the condensed moisture to run down the sides of the hive and out at the hive entrance, as we have seen it do. During the winter months there is very little condensation of moisture, owing to the temperature being lower, due to the quiet repose of the cluster of bees, and the entrances being kept at full width there is ample ventilation. In the spring it is different; the entrances have to be reduced to prevent robbing, and unless the covering is ample the condensation of moisture is very great. In such a case it is far better to have pervious quilts, so that the moisture can pass through them and evaporate. Our remarks in no way conflict with the advice given in February last year, as the conditions are different.—ED.]

WOMAN'S EXPERIENCE WITH BEES.

[165.] Years ago my father gave me a swarm of bees, and said, 'Do what you can with them.' We had no home, but lived with Mr. K.'s father, and my hives were box hives like all the rest. I got no honey but plenty of bees. My husband, like others, got the 'Western fever,' and 'West' he went to get us a home, and came home without one, as we had no money to buy such as he wanted. He talked 'West' for three years, and then I got the 'fever' too, and West I went, and came home with the 'fever' all gone. We intended to buy a farm, and had only $1000 in cash to buy with, and wanted a good-sized one. We went in debt on a farm that had been rented for nine years—a farm of 200 acres, with no fence on it, or anything else to live like other people. I had some Langstroth hives, and my bees began to work. I told my husband that I would pay for the farm with honey. I had to work with the bees all alone, as they stung the life out of my folks. I rolled my sleeves up and went to work with a will. The first year my bees all died except six colonies. The next season I crowded them with boxes, and had nine new swarms, and sold $100 worth of honey; the next year only $60—I felt weak; but the next year I had $350 worth, and the next, $556 worth: and the past year I had 8000 pounds of fine honey, and the average price per pound is nine cents, as honey is very plentiful. I have 148 fine colonies, and can pay for another farm if I keep well. We wives can lend a helping hand in many ways if we select some business, and stick to it. We do not take many cares off

our husbands, but we can try to pay for our homes. I let nature take its course with my bees. How nice it is to pay all expenses on a farm with bees, and then have all that is made on the farm clear. I often look at my pets and wonder how they can do so much.—Mrs. H. A. Kenrick, *Mindoro, Wis.—A. B. J.*

BEE-FEEDERS.

[166.] I have kept bees now for some sixteen years—not skep-bees all that time, for I busied myself in my younger days with *Bombus apis*, or the common wild bee. I was only some six years old when my mother and I took in hand to dig up a nest of these, and well do I recollect the proud man I was when the first bee entered the fig-box hive into which we had put the nest; but the glory was but short-lived, for, not content with having to walk away to a plantation to see my hive, the box was brought to suit me and placed in the garden, where, of course, it did no good. I don't recollect much about this lot; but I had many and varied experiences with it afterwards. Ultimately, I got a swarm of bees from my father, who, I may say, was likewise young when initiated into the mysteries of bee-culture, he having kept bees for upwards of seventy-five years.

But I have wandered far from my subject, viz., bee-feeders. Of these I have tried numerous, both cheap and expensive, and have used one of the former class this spring with great success. Some of your numerous readers may have already tried it, but I don't recollect having seen it described, and although on the old principle is a little different in construction.

I have a diamond (I wish I had more), and with it I cut a circle round an ordinary quart bottle about three inches below the neck. I prefer claret bottles, as they are shorter in the neck and come out abruptly at the shoulders. Then I gently tap it with the back of a knife, or, better, a file. Sometimes it doesn't come away so clean as one might wish. I usually cut it rather further down than I want, say about three-quarters of an inch, and if it does not break off well, I then cut another circle a little further up, and chip, as before described. After the bottle is cut I rub it against a flat sandstone to take off the sharp edges. I used to treat the lower part of the bottles in a somewhat similar manner and use them as feeders, and it was in so doing I discovered my new plan. I get some sackcloth and cover the opening thus made, which cloth is held in its place by an elastic band; now a good-fitting cork with a touch of grease on it, and the feeder, so far as the bottle is concerned, is complete. The stand I need scarcely describe. It consists of a piece of wood about five inches square, three-quarters thick, with a half-inch deep circle cut out to fit the bottle, and three holes about five-eighths broad cut in it, which I cover with wire gauze, as the bees sometimes eat the sackcloth, and that does not do at all, as you will shortly see. A flat piece of wood with holes bored in it will do almost as well, but the bottle is more easily upset. Now the bottle, with the sackcloth downwards, is placed on the stand, the cork removed, and with a filler the syrup is rapidly filled in and the cork replaced. This I find makes a very handy feeder, and never requires to be removed. A measure which holds the exact amount of syrup to be given is preferable, as you can dash it into the filler, and in with the stopper without the slightest chance of its running over. As you will see, the diamond is the expensive part of this feeder; but a travelling window repairer will cut any amount of bottles, I'm sure, for a very small sum, or they can be sent to the glazier to be cut.—Augustus.

PACKING UP AND UNPACKING.

[167.] When packing up my bees last autumn I was somewhat dissatisfied with their condition. I don't mean that I had any doubt as to sufficiency of stores—on the contrary, they had got a great deal more honey than I had intended them to have—but cold weather had set in before I had had an opportunity of taking it, and as I am not particularly fond of extracting honey in unfavourable weather, I decided to let it remain, and concluded that it was perhaps just as well that I had not been able to use the extractor more freely. A few spare combs of sealed stores in spring are always a great advantage, and save an immense amount of labour and anxiety. Years ago I was a very strong advocate for stimulative feeding, and during the spring months had a regulating feeder adjusted to each hive, which I attended to daily, but have long since given up the practice. In the first place, I cannot now spare the time; secondly, I am not at all fond of messing about with syrup at this time of the year, for however careful one may be it is sure to get upset sometimes, and is almost as certain to attract robbing; while last, but by no means least, I have never known stocks that require feeding to do so well as those well supplied with natural stores. If any of my stocks run short of food in spring, and I have no sealed stores to give them, I put about a quart of warm syrup in a large-mouthed bottle, cover with coarse strainer, and place on hive at night, which, as a rule, is taken down before morning, and I then know that that stock is all right for at least a week. The practice of giving bees just as much food as they require daily through a regulating feeder is not a reliable one; it can be managed all right in mild weather, but I have known more than one valuable stock die of starvation during a cold spell of weather in April and May with feeder full of syrup—bees don't like cold syrup in cold weather—hence the adoption of the quart-at-a-time system.

Returning to the question of packing up for winter, I am quite satisfied that winter passages are an advantage, if not a necessity; but somehow or other I don't like cutting holes through the combs. I gave passage-ways at top of frames

by means of sticks laid across bars, on top of which was laid a piece of calico, then a layer of carpet, and finally a thick chaff cushion, well pressed down, and entrances closed to within 1½ to 2 inches. My thirty stocks were then left to themselves for six long months. Once or twice during the winter I had a look round, just to see that entrances were not blocked with dead bees. Usually during the winter months comparatively large numbers of dead bees are to be seen on the ground in front of hives; especially is this the case after a few bright, sunny hours, during which the bees have had an outing, and the living thus able to remove their dead; but nothing of the kind has been observed this turn, in fact, I have seen scarcely a dead bee all the winter. The majority of my stocks appear to be as strong now as they were last autumn: about the middle of March each stock was superficially examined—that is to say, the quilt was turned back sufficiently to enable me to see plenty of sealed stores, which, coupled with the fact that all colonies were gathering pollen, satisfied me that no further examination was then necessary. On the 11th of April I commenced my 'spring clean;' tops of frames were scraped, floor-boards cleaned, and the exact condition of each stock ascertained—some were found rather short of stores, while others had got more than enough: but, my frames being all of one size, matters were easily equalised by taking from the rich and giving to the poor. Thus I have wintered without a single loss; all stocks are now in first-rate condition, strong with bees, plenty of stores, and large quantities of brood.

Perhaps my success in wintering is owing to the fact that I observed the following rules, viz., abundance of natural stores, winter passages, warm porous coverings, young queens, and *non-interference from September to April.* — A. SHARP, *The Apiary, Huntingdon.*

SELF-HIVING NATURAL SWARMS.

[168.] *Self-hiving Devices.*—These ideas, which I trust will be tested during the coming season on a wide scale, may suit apiaries of three or four hives, but to duplicate, say, my own apiaries of one to two hundred hives would mean a very large outlay, besides a storehouse for the hives when not in use nearly as large as a barn, which would be another considerable item of expense. The principal device used to prevent swarms flying away in large American apiaries has been clipping the wings of the queens; this system proves satisfactory in some instances, but it has its drawback, as most other things in this mundane sphere. I should think it would be advisable to stand the hive to receive the swarm on a higher level than the one that is expected to throw the swarm. Bees always run up naturally, and if the confined queen-subway were on an incline, I think it would be an inducement to her to continue her journey into the new hive: then another entrance could be provided at the opposite side of the new hive, through which the worker-bees could pass; then the swarm could settle down to work, and would be more likely to secure the bulk of the swarm. Otherwise, on the 'Alley' plan, I should expect a large quantity of the bees would return to the old hive, and second swarms would be bothering the bee-keeper the week following; besides, the incline up to the new hive would act as an incentive to allure the queen up into the new hive, but would retard her return to the old home below. I would caution young hands to be careful in bending the zinc at the corners, or any bulging segment may allow passage for the queen to get out, and then, if the new device is left in charge, the swarm may steal off to some unknown retreat. Would not a combination of glass and zinc be an improvement, and act as an allurement to the queen to pursue her journey on foot instead of on the wing?—WOODLEIGH.

BEE-KEEPING IN CUBA.

The honey-bee was introduced into Cuba from Spain at a very early period of its history; and being a land of perpetual flowers, with no winter to impede their labour, they soon spread to all parts of the island, and bee-keeping has long since become one of the established industries. There is probably no other country of equal extent on the globe which has furnished an equal amount of honey and beeswax. The latter has, for more than two centuries, illuminated the churches of both this island and the mother country, while the former has found a remunerative market in all civilised countries.

A Cuban beehive is very simple, consisting merely of a hollow palm log, or oblong wooden box, ten to fifteen inches in diameter, and five to six feet in length, open at both ends. These hives are arranged in a horizontal position, three or four feet high, supported on a framework of long bamboo poles resting on posts driven into the ground. When these hives are full of honey, the Cuban bee-keeper, after thoroughly smoking the bees, thrusts into one end of the hive a long sword-shaped knife, and cuts the combs loose from the inside walls. He then inserts a long iron rod, flattened at the end, and bent in the form of a right angle, clear into the brood nest (which generally occupies about fifteen inches in length of the centre of the hive), cuts the combs, and pulls them out one by one. He then performs the same operation on the other end of the hive, and so continues until the whole apiary is gone over. The combs are now submitted to pressure, and the wax separated from the honey. Of course, the honey so obtained is not very pure, being mixed with pollen, propolis, dead bees, and the juices of larvæ, all of which tend to cause fermentation. Cuban honey (than which, when pure, there is no finer in the world) has gained an unenviable reputation. Native apiaries, of from 50 to 300 or 400 colonies, are frequent, and sometimes as many as 2000 are kept in a single yard. The season for surplus honey extends from October to April, the height of the flow being from the

middle of December to the middle of February; but there is almost always a sufficiency for breeding purposes, and hence the Cuban bee-keeper never resorts to feeding. He 'robs' his hives only once or twice during the year, and seems satisfied with 75 lbs. to 100 lbs. of honey per hive. —A. J. KING.—*Gleanings.*

Selected Queries.

[6.] *Do you use excluder zinc between brood chamber and supers, and if so, what sort of zinc do you consider best for this purpose?*

As I do not '*go in*' for honey extensively, I do not use excluder zinc largely, but I strongly recommend it to those who do, and who do not want their supers contaminated with brood; and at all risk of being misunderstood, I should use no other than that introduced and well known as 'Abbott's speciality excluder zinc,' the perforations of which are of the exact size for general use, and the solid parts of the right strength and solidity to best keep their shape. It is not through the perforations of this zinc that queens creep, and about which the necessity for this 'query' has arisen; the objectionable zinc is the improved kind, that gives longer holes and greater 'facility to the bees' (?). The extra length of the perforations is its weak point, because the tendency of zinc to 'buckle' or twist permits of their easy enlargement.—C. N. ABBOTT, *Southall.*

Invariably: but it should be stated that I work almost exclusively for extracted honey, and always use shallow surplus chambers. Ever since Messrs. Fred. Braby, Limited, brought out their new long-hole pattern, with rounded ends, I have used no other, and consider it excellent for the purpose. I understand it is expressly made for use on beehives.—W. B. CARR.

I have no use for excluder zinc in my apiary when working for comb honey in sections, and as a large producer for several years I have had considerable experience. I do not get anything like one per cent of broody sections, taking a range of, say, ten years. For doubling hives, worked for extracted honey, I should recommend the use of excluder, with bee-space both above and below the zinc, *i.e.*, the zinc placed in a groove of the honey-board, and the bottoms of the top set of frames to hang clear of the zinc by a bee-space, ⅜ths of an inch. This distance gives good results, very little propolisation and brace comb.—W. WOODLEY.

Always for large supers and 2-lb. sections, but never for 1-lb. sections. The queen rarely goes into the latter.—T. SELLS.

Formerly I used it always, and preferred the long-holed zinc. I do not use it now on hives with sections, but I do occasionally use it when doubling hives for extracting if early honey is required, as the queen can much more easily go up into frames than into sections; but there is little fear of her doing so in either case *provided* she had plenty of room for depositing eggs at the time the super is placed on, both in worker and in *some* drone comb. Unless she has some drone comb left below, she will certainly travel higher in search of it.—M. S. GAYTON, *Much Hadham.*

No; but I intend to use it on every hive this year above the frames. My experience of excluder has been confined to side of last frames and end section-boxes. So many sections and shallow-frame combs are ruined by a few brood eggs that I shall stand no more nonsense from the queen. Oval-ended and pointed-ended zinc I have not tried; the parallelogram ▭ would seem sufficient.—R. A. H. GRIMSHAW.

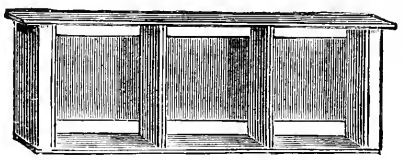
If a strong swarm is set up, and supered with section-boxes, I have found excluder zinc unnecessary, especially when such is supered during a honey-flow. For established colonies, worked for sectional or extracted honey, I use excluder in every case, and also for swarms if worked for extracted honey alone. I found the 'Raynor' excluder (with V-shaped ends to the perforations) beyond any other, until I used a more recent excluder, having long perforations, with round ends, which make leaves as much strength to the perforated sheet as does the 'Raynor,' but has the greater advantage in giving more open space (for the bees' use) in the same-sized sheet than any other queen-excluder in the market.—JOHN H. HOWARD, *Holme, Peterborough.*

Queries and Replies.

QUERY.—1. Is it best to place sections on hive *parallel* or at *right angles* to frames? 2. How can I prevent sections being propolised at the bottom? 3. What space ought there to be between the sections and the frames? I have made most of my crates with strips of wood, for the sections to rest on, three-eighths of an inch thick, consequently there is a full three-eighths of an inch space between my sections and the frames. Is this too much? If I used strips three-sixteenths of an inch and placed sections at right angles to frame, would this *effectually prevent propolisation?* 4. I use two tin rests to support the sections in my crates ⊥″. What *height* ought the centre-piece *a* (upon which the separators rest) to be? I make mine three-eighths of an inch; then, with *three and a half-inch wide separators*, this leaves three-eighths of an inch space top and bottom, or, I should say, about a quarter of an inch at top, for the wood of the section measures nearly one-eighth of an inch. Can I improve upon this? I use *two bee-way sections*, but I do not want *pop-holes*, neither do I want *bulging sections*. 5. Personally, for several reasons, I prefer crates holding eighteen sections. Why are they now nearly always made to hold twenty-one—is there any special reason for this? 6. When I put full sheets of foundation in frames I fasten the sheet in a saw-cut with brads, but it often does not *hang down straight*. What is a good plan to keep it

straight, as this seems to me an important point? I have tried sticking a three-quarter-inch brad on either side, and then pressing the wax upon them; also tying the corners of the sheet to the corners of the frame with thin wire, but neither plan seems to answer well. I do not want to wire my foundation, but to fasten it in saw-cut, and at the same time *keep it straight*. 7. Where is the best place to put the feeder, immediately over the brood nest, or is it better to avoid this?—H. DURHAM.

REPLY.—1. If no queen-excluder is used, place the sections at right angles to the frames. 2. Propolisation can be prevented by working the sections in wide frames, as shown in illus-



tration, or by having an adapting-board on which the sections stand, having slits just to correspond with the openings of passage-ways. 3. Three-eighths of an inch is the space usually allowed, but it should not exceed this, and would be even better a quarter of an inch, as with this space bees are not so likely to build brace combs. Three-sixteenths will not prevent propolisation, and is not sufficient to allow the bees free passage under the sections. 4. Three-eighths is the proper height for separator rest if you use three and a half-inch wide separators. Use full sheets of foundation to reduce chance of pop-holes. 5. The twenty-one section racks were adopted because they were made to cover a ten-frame hive. 6. Have your hive standing perfectly level; the sheets of foundation must then hang straight. 7. It is not important so long as the bees can get at the food easily.

QUERY.—It is my intention to work for extracted honey. I have one very strong stock in 'Cowan' hive, and I expect an early swarm. I should be glad to have your opinion and advice, through the columns of the *Journal*, on the following points:—1. Will one body-box (ten standard frames) give sufficient breeding-room, or would you recommend a second box, say of shallow frames? 2. Is it advisable to use shallow frames for tiering? (Last year I spoilt several combs in extracting although they were wired.) 3. Can you advise a trial of the self-hiver (not Alley's)? Some system of self-hiving would be a great convenience to me, as I am engaged in business during the day. At the same time I do not want to run any serious risk of a blockage, or of damage to the queen. At a pinch I could get a boy to watch for me, and rush to the hive, which is a mile away, on hearing of a swarm. 4. Do you think excluder zinc necessary?—A. C. WILLIAMS.

REPLY.—1. We would use two body-boxes if working without excluder zinc, or one with. 2. Yes; use shallow frames for extracting if you prefer them. 3. The expense of a trial of the self-hiver would not be great, but as it is quite a novelty and untried, we do not recommend you to go in for it largely, or to depend upon it. The one we should recommend is that described on page 128, *B. B. J.*, as Bennett's self-hiving arrangement. 4. Excluder zinc is advisable with shallow-frame supers if only one body-box is used.

QUERY.—I have two bar-frame hives which I examined for the first time on the 25th inst. I found in No. 1 only sufficient bees to well cover four frames, with brood in three of them. They had been wintered on five frames, and I have given them candy and, latterly, syrup, so that, although apparently so weak, they have had plenty of stores, and seem now to be healthy and increasing. No. 2 hive was wintered on six frames, all of which were fairly covered with bees, five of them having brood and one drone brood; also a few drones hatched out. My intention was to work the strong lot (2) for sections (as I have a lot of sections on hand), and the other for extracted honey. Could you kindly say whether I shall be able to get No. 1 strong enough for work, and if not, how would you proceed? Any advice would be acceptable, as I am quite a novice. I may say that I followed Cowan's instructions, and put the frame having least brood in the centre, but find the uncapping of the cells awkward, for the bees are always in the way, so that instead of cutting the caps clean off I simply scratched them. I do not want to unite them, unless you think it really necessary. I intend looking at them week by week (weather permitting) and *cautiously* spreading the brood according to his directions, unless you advise me differently.—NOVICE.

REPLY.—You would have done better by giving a couple of frames of comb earlier on. Queens have a dislike to depositing eggs in the outer combs, and, until compelled by want of room, seldom do so. Had you given three or four frames to the strong lot, and two to the weaker one, probably breeding would have been more forward. However, you have still time to get the stocks strong by the second week in June. Instead of disturbing the bees 'week by week' for the purpose of 'uncapping stores,' 'spreading brood,' &c., just raise the combs a little and scratch the surface of *all* the sealed food in the hive; give extra combs as advised above, and leave the coverings to hives entirely undisturbed, merely giving syrup slowly for two or three weeks to come.

QUERY.—Would you advise me in your valuable *Journal* if I could move the bars and bees from a small frame to a larger one, and if doing so would prevent them from swarming?—E. BROADWAY, *Winchester, April 27th*, 1890.

REPLY.—1. If the small hive takes less than ten frames, a larger one will be an advantage. 2. Giving room always lessens the tendency

to swarm, though it does not entirely prevent it.

QUERY.—A neighbour of mine has a field of ten acres of white clover within half a mile of my bees. Will they get to it? He is feeding it with sheep, and will be for another fortnight, when he intends saving it for seed, so that I should think it would be right for bees about the beginning of June. Would it be practicable to move the whole of my stocks to it, or would it be better to hive my swarms on foundation, and take them there as they swarm? Should I be likely to get a good surplus by moving them to the above?—ST. IVIAN.

REPLY.—Clover 'within half a mile' is so nearly as good for bees as if close to the apiary, that any trouble taken to move them closer to it may be regarded as labour thrown away. With ten acres of white clover left for seed, you will be very likely to have a good year for honey.

QUERY.—I send you up a piece of comb which I am afraid is affected with foul brood, or is it a bad case of chilled brood? I have been trying my hand at 'spreading brood,' and the inside combs seem affected as well as those outside. They are rather a weak lot, on five bars at present. I examined my two other stocks, and in one I found some dead brood, but only a little. In that I had been also spreading the brood. In my third stock—which is very strong, on thirteen frames, and with drones hatched and flying—I saw only one or two dead grubs, and the brood looks healthy and bright. I have spread the brood a little on this one too, but they are strong. Will you kindly tell me what you think, and advise what to do?—R. LYON.

REPLY.—The brood in comb sent has perished through 'chill.' We are glad to see no sign of foul brood, and must strongly urge you not to attempt to *spread brood* with 'a weak lot.' We always advise care in this operation, even when dealing with strong stocks, but where the bees are weak, and only on five frames, it is most injudicious to attempt it. Moving combs containing brood means certain death to it unless the hive is full of bees from side to side. Pray be cautious in future, and rather be advised to give up 'spreading brood' altogether than damage your stocks as in this case.

QUERY.—Kindly tell me, if honey contains formic acid injected into it by the workers before sealing, does the stingless bees' honey of Australia and Mexico contain it, and if so, how does it get there?—T. D. SCHOFIELD.

REPLY.—The honey of *Apis mellifica* (our honey-bee) does contain formic acid, which the workers inject before sealing. The chemical effect of this is to prevent fermentation. Honey produced by the stingless bees does not contain this acid, and would therefore ferment on exposure to the air.

Echoes from the Hives.

Royal Berks Bee-farms, Beedon and World's End, near Newbury.—The past week has been dull, cold, and sunless, retarding the development of the brood nests very considerably. It is from brood reared from the middle of April till the middle of May that I depend for the workers to gather the crop of clover honey in June. We have abundant forage in the shape of dandelion and wild anemones waiting to be gathered on the first favourable change of the weather. My bees still continue to accept artificial pollen, which I place in sheltered corners for them. I hoped a month back that we should get an early season, but the past fortnight's cold easterly winds will throw us back.—WM. WOODLEY.

Honey Cott, Weston, Leamington, April 21st.—We have been having anything but pleasant weather here these last two or three weeks; the temperature has been very low, the wind very cutting, no sunshine, so that altogether the bees have had but a poor time of it. Many that went out did not return. Yesterday the sun broke through for an hour or two, and what a hubbub there was—the air was ringing with the hum of the busy workers! As yet, here, the season has not been very propitious. Reading an 'Echo' from Sussex last week almost makes one wish, without envy, that our bees could have a job to seal up some honey.—JOHN WALTON.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

A. MARTIN.—The comb sent appears free from disease. It has been bred in and this gives it a dark appearance. The pollen is mildewed. We will try to find out what the seed is for you.

W. TRUELOVE.—This is a case of foul brood. Many of the infected cells have become dried up, but on no account use them: they would infect a large apiary. Destroy the combs, frames, and quilts, and *thoroughly* disinfect the hives.

J. EDWARDS.—Another case of foul brood. See advice to Mr. Truelove.

G. S.—We prefer No. 2, then No. 4.

NOTICE.—We would ask our correspondents to take notice of the removal of our office, and to request them in future to address all communications relating to the literary department, &c., to 'The Editor of the "BRITISH BEE JOURNAL," 17 *King William Street, Strand, London, W.C.*'

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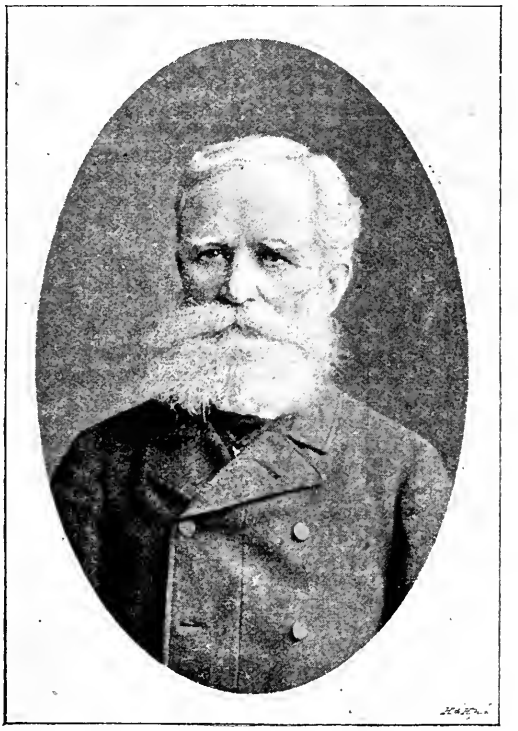
Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 26.—M. A. DE ZOUBAREFF.

Although modern methods of bee-keeping have not been introduced into Russia many years, the people of this country have long been occupied in keeping bees on a large scale. This has been in a great measure for the sake of the wax, which is required in the production of candles used in the Orthodox Greek Church. During the last few years modern methods have come into vogue, and amongst their most zealous promulgators we find the subject of our present biographical sketch.



M. A. DE ZOUBAREFF.

M. A. de Zoubareff, having completed his studies in 1845 at the Imperial School of Law, and having passed through different degrees of judicial service, he was in 1850 appointed Chief Secretary of the Senate. In 1860, at the election of the nobles of the government of St. Petersburg, he was elected President of the Court of Appeal in St. Petersburg. In 1880 he retired from the State service to rest, after thirty-five years of judicial life, and to occupy himself with his own property.

His acquaintance with an intelligent bee-keeper, M. Valvatieff, who had adopted in his apiary the bar (about the same time as M. Dzierzon), his conversations with him, and three bar hives placed in his own garden in 1858, were all a source of considerable pleasure, and a means by which he became acquainted with many bee-keepers.

The large size of the combs attached to bars induced him to adopt the frame. Finding, however, that the cost of frames made according to the Berlepsch model was too high for popular use, he made, in 1860, frames of laths bent from a single piece, somewhat after the fashion of our one-piece sections. These were adopted by many persons. Up to 1880–1882 M. Zoubareff's knowledge of modern bee-keeping was very elementary, and he expresses himself as indebted to his colleagues—M. E. Bertrand, who first made him acquainted with the advantages of hives with movable tops and floor-boards, and Mr. T. W. Cowan, who introduced to his notice the fine appliances used by English bee-keepers.

These two bee-keepers caused him to abandon the Berlepsch hive, and he devised a hive, taking that of Mr. Abbott as a model, having a sliding floor-board and legs. He doubled the length of his original frame, and reckoned that ten or eleven such frames would be sufficient for an ordinary swarm, without the queen being obliged to go into the supers, which should only serve for surplus. These, when empty, are filled with dry leaves during winter and serve as a covering. The frames are used in both the body hive and super, which can, if required, be filled with sections instead.

In order that the hive may be more within the reach of small purses, he makes it a double or twin hive. This has several advantages over the single hive. It being occupied by a swarm or a colony, this can be divided by simply placing a close division-board in the middle and frames on either side. The reunion of two colonies, if one has lost a queen, is accomplished by the removal of the division-board. The warmth kept up by the two colonies also secures better wintering.

It is not long since that German bee-keepers have appreciated the advantages of double hives, which they also call twin hives (*zwillinge*), and last year Dr. Dzierzon wrote stating that twin hives form one of the principal requirements of rational bee-culture.

M. Zoubareff has the satisfaction to find that this hive has taken root in Russia, principally amongst the cottagers, schoolmasters, and clergy. This was his great desire, for these are all earnest bee-keepers, who do much by their example to spread this branch of rural science, and who have frequently a hard struggle for existence on their small incomes. Several hundreds of these hives, or copies, are distributed in all parts of the vast Russian empire, and he has just issued a second edition of the plan and description of this hive. The hive being sufficiently large to lodge the colony without the addition of a super, it is especially suited for migratory bee-keeping. The large frames of this hive necessitated a suitable extractor, and he found none so convenient as the Cowan 'Automatic.' Unfortunately, owing to a difficulty in getting workmen to make the gearing properly and at a reasonable cost, M. Zoubareff was obliged to substitute pulleys, and these succeeded so well that he obtained, in 1885, a prize for his extractor at the Geneva Exhibition. Experience, however, proved that if reversed suddenly by a careless operator the combs are liable to be damaged, and to get over this difficulty he substituted for the automatic action, wheels which could turn the cages by hand, an operation that does not take much time.

In order to make bee-keepers acquainted with modern methods of bee-keeping, M. Zoubareff wrote in 1885 a book entitled *Pchelowodstvo*, which was approved by the Minister of Public Instruction. This edition is nearly exhausted. In 1887 M. Zoubareff translated Cowan's *British Bee-keepers' Guide-book*, which is also quite sold out, and he is now engaged on a second edition, translated from the tenth English edition.

In 1886, after the unexpected death of that worthy bee-keeper and Member of the Academy of Sciences in St. Petersburg and Professor of the University, M. Boutleroff, M. Zoubareff accepted the offer of the Imperial Economic Society to continue the editing of the Russian Bee Journal, which Professor Boutleroff had founded some months before his death; and he was also elected President of the Apicultural section of the Society. The journal under M. Zoubareff's editorship has extended its circulation very considerably and has done much to popularise modern methods. M. Zoubareff found that the editorial work was a constant source of fatigue and anxiety, and has, after three years, retired from it, giving his experience in the journal only as a correspondent.

We hope M. Zoubareff may continue with his good work, and may see in an increased production of honey the fruits of his teaching.

POPULARISING BEE-KEEPING.

The present day is so full of promise for bee-keeping as a pursuit, and there may be seen around us so many indications justifying a sanguine view of the prospect visible in the near future, that it behoves us to consider in what manner we may take advantage of the 'flowing tide' so unmistakably 'with us.' In plain words, what can we do to popularise bee-keeping?

Judging from reports just to hand and by the generally forward condition of bees, we may reasonably hope for a good honey season, and bee-keepers already begin to feel the keen ardour invariably aroused by a sight of the bees 'getting to work in earnest.' The time is full of promise, and, seeing that our own special task is to multiply readers of the *Journal* and bring in recruits, we again ask ourselves what can be done to make bee-keeping popular in the sense of inducing persons to study and take its pleasant teachings to heart?

We neither desire, nor do we expect, to see a large increase in the number of persons who adopt bee-keeping as a sole means of obtaining a livelihood. Apart from our appliance dealers, a few of whom are also honey producers on a large scale, it may be said there is no one in the kingdom who lives by bees and things connected with them, and we may safely affirm that there is not a single person who depends solely on the sale of his own honey for a living. There is no reason for regret at this state of things, indeed we go further, and say we do not care to see a great addition to the numbers of those who make a point of keeping as many stocks of bees as they can possibly manage, with the object of making their bee-produce an *important* item of income.

There is too much risk of a season of failure in this precarious climate of ours to make it desirable to see a large increase in the number of persons who keep bees only for profit; but why should we not spread a love of bees among quite another class, whose good fortune it is to be raised above such considerations? Tens of thousands of clerks and better-class artisans are able to live in pleasant suburbs of the towns where they are employed, and can indulge in modest luxuries and hobbies, such as greenhouses and gardens, which afford them untold pleasure in the early mornings and summer evenings after the day's business is over. Such persons will cheerfully spend several pounds per annum, besides giving a great amount of labour, to the culture and tending of nature's loveliness, in the form of flowers, just for the pleasure

derived from the sight of their loveliness. They never look for profit from their labour in the *l. s. d.* sense, nor do they grow garden produce for sale, and feel soured and disappointed if 'cauliflowers are down in price!' All they desire is fresh, wholesome fruit and vegetables for home use, and the labour expended on them adds in a manifold degree to the pleasure of the ingathering. Amateur gardeners are increasing everywhere, and why should not keeping bees for pleasure, or as a home hobby, become as popular as gardening? Again, why should our amateur bee-keeper allow his new-born ardour to lead him off into an intense longing to become a big honey producer? The city clerk or artisan while enjoying his flowers and his fruits does not fume and fret because he is not a market gardener! Our desire is to enlist as bee-keepers members of that large class who would limit themselves to keeping two, or at most three, stocks mainly for the pleasure to be derived from viewing the 'busy little labourers' working merrily whenever the sun shines. No greater delight — and we say it advisedly — can be imagined than the quiet contemplation of a hive of bees at work on a bright, fresh morning in the early summer-time to a man who is not greatly concerned whether the honey harvest be a large one or not; so long as he secures enough for home use he is supremely happy in gazing on the busy workers as they return laden from the fields and gardens around, and does not write to his *Bee Journal* a doleful account of his hives 'not yielding well.'

An old friend of ours, who was an ardent lover of bees, used to say, 'I don't care for the honey, but I do love to see the little beggars work!' In no way can we hope more to popularise bee-keeping than by encouraging and developing the sentiment conveyed in the words quoted. Dwellings in suitable districts may be found by thousands where a couple of hives of bees would add to the pleasure of home life, and where they could be kept without being either 'in the way,' or an annoyance to any one.

We would do nothing to encourage the class to whom the observations are addressed in keeping more than two, or, at the very most, three stocks of bees; to go beyond that number means making, more or less, a toil of what is intended only as a source of pleasure, and there need be little difficulty in starting bee-keeping in this way. In almost every county in the kingdom there are bee-keepers willing to help on a beginner, and in many counties where bee-keepers' associations are established the officials spare no efforts in giving every information, so that those who are desirous of acquiring bee-knowledge need not go very far to seek it. The advice and assistance so freely tendered in this way ought to be one of the greatest aids in making bee-keeping popular, for there are few occupations in which a practical lesson is of such value. A half-hour spent in watching a bee-keeper handle his bees often removes from the mind of the onlooker anything like dread or fear of them.

The subject is so full of interest we purpose returning to it next week.

IMPORTANT NOTICE.

We desire to remind our readers that Monday next, 12th inst., is the last day for receiving entries for the Royal Agricultural Show to be held at Plymouth. The very favourable weather with which bee-keepers are now being favoured should be the means of producing a large entry at this Exhbition.

THE NEW CLASSIFICATION OF GOODS BY RAIL.

The Board of Trade (represented by Lord Balfour of Burleigh and Mr. Courteney Boyle) has been hearing the objections to the proposed new classification of the railway companies during the last few days. It may be remembered that the action of the railway companies after the passing of the Rail Rates Bill was looked upon as an attempt to get higher classing and rates all round; and to protect the interests of British bee-keepers a meeting was held, and a Committee appointed, consisting of Mr. Jonas, Mr. J. M. Hooker, and Mr. T. B. Blow. The work of the Committee was a lengthy one, but ultimately the objections were sent in, and Mr. Blow was requested to undertake the appeal. This came on, on April 28th and 29th, and though nothing is officially known yet so far as regards honey, we think there is no doubt that Mr. Blow has succeeded in getting this put upon a fair basis. The companies proposed to place honey in Classes 3, 4, and 5. Class 3, honey in barrels or tins or crates. Class 4, honey in jars. Class 5, honey in comb. The result is that the railway companies consent to take honey in bottles or jars in Class 3 on condition that the jars are in crates or cases. This, we think, is highly satisfactory, as all extracted honey can now go to shows at No. 3 class rate if it is packed in crates or cases, which, of course, has always been done. No objection was raised as to comb honey being in Class 5, as it was felt that it was a risky article, and therefore the companies were entitled to ask that it should go at fifth-class rate.

The result as it affects beeswax can hardly be forecasted. Mr. Blow asked that it should go in Class 2, as being an undamageable article. The companies ask for Class 4; probably it will be put into Class 3, which will meet the case.

The same remarks apply to beehives of wood.

Mr. Blow was ably supported in the honey arguments by the representative of the wholesale druggists, who bore testimony to the truth of what had been said of the keen competition we had with foreign honey, and the necessity of low rates to foster this growing native industry. The British Bee-keepers' Association deserve the

heartiest thanks for the action they have taken in the matter to protect bee-keepers from anything like extortion by the railway companies. The matter, too, has been one of considerable outlay to them, which we hope will be recouped by increased subscriptions. The full results of the appeal will be given when officially announced.

ERADICATING FOUL BROOD.

This, the most destructive disease of our industrious little workers, has disheartened many in a pursuit which can, while being made profitable, also prove interesting and instructive. To obtain a satisfactory knowledge of the nature of the disease has engaged the attention of our most scientific bee-masters, and many remedies have been tried. The great difficulty of eradicating the disease has been that, when an apiary has been attacked, just as the owner is flattering himself that he has effected a cure and stamped out the disease, after much patience and expense, and all appears to be going on merrily, foul brood, and all its dread results, breaks out again at a time when it is least expected, causing great disappointment, and for this reason in many cases the pursuit is entirely abandoned. And why? Because the bee-keeper loses heart, finding that whatever he may do, however much he may disinfect his hives and appliances, yet the disease will break out again and again in spite of all the precautions he may take. The cause is not far to seek, and is known to many. Perhaps over his hedge, or not a mile distant, the source of the infection may be lurking. A careless bee-keeper in the vicinity, or a neighbour, may be allowing a hive rotten with disease to stand unprotected in his garden, disseminating the germs and conveying infection far and wide, to the worry of the industrious bee-keeper and the ruination of entire apiaries.

How long, may we ask, is this state of affairs to continue?—for it is quite impossible to muzzle our bees, and prevent them from examining combs in forsaken hives in search of what honey there may be left.

On the other hand, the microbe may be wafted to an unsuspecting colony by the wind. Germany is already alive to the danger, and has recently passed laws to meet the emergency. Canadian bee-keepers are about to try and get the President of the Chamber of Agriculture to move in the matter.

We naturally wonder if something cannot be done in this matter in the British Isles.

No one, so far as we are aware, has tried our law courts in this matter, but we should not be at all surprised to learn that our existing laws are sufficient to cope with the evil; and the following report from a daily newspaper of a trial (somewhat analogous) may prove of interest to bee-keepers:—

'Novel Claim.—A case was heard yesterday at Loughborough County Court, in which a retired lawyer named Giles claimed five guineas from a farmer named Walker for damages to his garden through thistles. It was stated that Walker's field, 300 yards away, grew thousands of thistles, the down from which was carried by the wind into Giles's shubbery and garden, being caught by the trees. Giles said he had employed three men and a woman pulling up the thistles. After four hours' hearing, the jury gave a verdict for the plaintiff, assessing the damages at three guineas. The defence was that the thistles grew on the surrounding land also.'

If it is illegal to grow thistles to the detriment of your neighbour's garden, surely it must be equally illegal to allow a discarded hive to remain, and through carelessness and exposure to convey the seeds of destruction to entire apiaries in the neighbourhood.

We throw this out as a suggestion. Perhaps the British, or some of the County Associations, might be willing, in the cause of apiculture, to arrange for a test case; the funds thus expended would be trifling compared to the boon obtained.

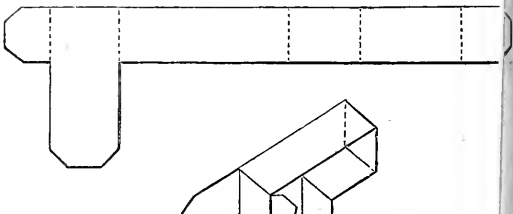
Surely, if existing laws are sufficient to deter thistle-growing to the detriment of neighbours, and persons have to pay for damages caused by barbed wire when near a public road, then the laws should be equal to the emergencies of the bee-keeper?

We should like this question tested; and if existing laws are not sufficient to meet the case, then measures might be taken to obtain legislation for the protection of bee-keepers and the industry we all have so much at heart.

Notes on Novelties.

MR. CARMICHAEL'S NEW METAL ENDS.

We have much pleasure in bringing to the notice of our readers, a very simple metal end, devised by Mr. Thos. D. Gibson-Carmichael of Melrose. It is made of one piece of tin and can be stamped out of the sheet. The upper figure shows how it is to be cut, and is a full-size representation. The dotted lines shows where

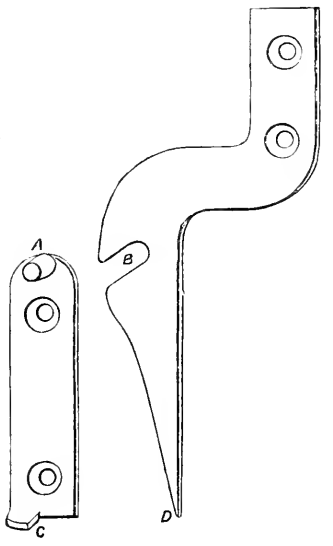


it has to be folded. It can be folded on a hard wood or metal stock just the size of the top bar of the frame. When folded it represents the appearance of the lower figure, the piece projecting at the side being for keeping frames the proper distance apart, and that at the bottom will keep the ends of the frames a quarter of an inch from the hive sides. The drawings make everything so clear that any bee-keeper can make them for himself.

MR. IRELAND'S SUPER-CASE HINGE.

There has always been a difficulty in getting a satisfactory hinge for super cases, the ordinary butt hinges preventing the removal of the super case in the event of necessity. Mr. Ireland of Melrose tried those recommended by Mr. Cheshire and found that in practice they were unworkable, however good they might be in theory. He tried a number of experiments until he found a pattern that would work satisfactorily.

Our illustrations are half size. The plate



Ireland's Super-Case Hinge.

A C is screwed on to the lower case, and it will be seen that there is a pin at A and a stop at C. The other part of the hinge is fastened on the upper case and the notch B fits over the pin A. When the case is down in its place the projecting end stands at right angles, but when the case is turned up the point D presses against the stop C, and this prevents the case and roof falling too far back. If it is required to take off the roof the hinge can be slipped off the pin A. It is made of wrought iron, and there must be a pair, a right and left, for each hive. In making them care should be taken to keep to the pattern as shown in the illustration.

SECTION FACTORY BURNT OUT.

We regret to announce that the large factory of G. B. Lewis & Co., of Watertown, Wisconsin, U.S.A., was, on the morning of the 19th April, entirely consumed by fire, with the whole of the contents in process of manufacture. Lewis & Co. are well known in this country as makers of the highest class sections, and we understand the firm will at once take steps to rebuild their works on a larger and better scale than before.

Selected Queries.

Additional Reply to Selected Query No. 4.

No; the trouble and expense is too great, and land too dear. The range of the bee is so great, as those who keep Ligurians can testify, that they do not bother with small patches near home.—R. Thorpe.

[7.] *In supering hives incapable of other than perpendicular expansion, is it best to place No. 2 super under No. 1, No. 3 under No. 2, and so on, or to put No. 2* on top *of No. 1, and No. 3* on top *of No. 2, and so on, taking it for granted that supering is desirable either by storifying or underpinning?*

This is a subject on which writers differ, and opposing views may be expected, for each will doubtless do his best to support his expressed opinion on the subject. There can, however, be but one *best* way of doing a thing, and I have not a doubt that in storifying supers it is best to put No. 2 on the top of No. 1, and No. 3 on the top of No. 2, and so on, always supposing No. 1 to be on the top of the hive next the frames. In underpinning, No. 1 should be immediately under the hive, and, when required, No. 2 should be placed under No. 1, and No. 3 under No. 2, and so on. Of the two systems I prefer the storifying to the underpinning or nadiring. The storifying system assumes that super No. 2 will be added before super No. 1 is sealed out, and if No. 2 be placed on the top of it, there will be practically no let or hindrance to its completion, when it may be removed. In the meantime, if No. 2 be required, the bees will take possession, and will do their best in it. When No. 1 is removed, No. 2 will be lowered down to the hive, and, when wanted, No. 3 should be put on top of it. There will, however, be little harm done if No. 1 be left on the hive until the harvest, *pro tem.*, be over.

On the other hand, if when No. 2 is first required it be placed *under* No. 1, the bees will undoubtedly do their level best to fill it with comb, to do away with the empty space it will have created between the hive and No. 1, and the latter will often be neglected until that be done, and not infrequently the honey yield will slacken, and both supers will be left incomplete.

Learners should read the correspondence, in early volumes of *B. B. J.*, between Mr. William Carr, of Newton Heath, and the celebrated 'Renfrewshire Bee-keeper' on this subject.—C. N. Abbott.

I consider it best to place No. 2 super under No. 1, No. 3 under No. 2, and so on, as when supering by storifying much the cleanest combs are secured, and, when underpinning, the risk of swarming is reduced by always placing the new additional super below those already being worked with the hive.—H. Wood, *Lichfield.*

Place No. 2 under No. 1, and No. 3 under No. 2; the sections will be cleaner.—R. Thorpe.

I advise that No. 2 empty super crate be placed under No. 1, which, of course, will be partially filled before being raised. No. 3 would then go under No. 2, and so on. By the time No. 3 goes on, No. 1 would usually be finished and ready to take away.—T. B. Blow.

Yes; up to a certain time of the season I prefer to put the empty super under the one already on; No. 2 super under No. 1, and No. 3 under No. 2. But when the honey-flow is on the wane, I prefer then to put the empty super on top of one already on, viz., No. 2 on top of No. 1, and No. 3 on top of No. 2: with the latter there is thus a better chance of having the super filled at the close of the season.—W. McNally.

I used to be of the opinion that it was best to place No. 2 under No. 1, and so on, and mostly do so, but I have considerably modified my opinion, having seen the difference in three or four seasons' work in an apiary of a *protégé* of mine, who dares not lift off the supers to place No. 2 under No. 1, but places No. 2 on top of No. 1, and so on. Last year particularly I noticed the sections were much better filled, some weighing eighteen or nineteen ounces. They were tiered up four crates high before any were taken off, and all crates were well filled.—John Walton.

I think it best to put No. 2 under No. 1, as the sections are always kept cleaner, and bees seem naturally to prefer finishing above first; and if the queen requires more room, give a hive filled with foundation between No. 2 and the stock as soon as Nos. 1 and 2 are progressing fast and are forward.—Mary L. Gayton, *Much Hadham*.

Correspondence.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 1st page of Advertisements.)*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of April, 1890, amounted to 8391*l*. [From a return furnished by the Statistical Department H.M. Customs to E. H. Bellairs, Wingfield, Christchurch.]

WHY DO I BREAK THE LAW?

[169.] The law delivered so often from the Editorial Sinai's of almost all bee-papers—that 'in supering, a second crate should be put *under* the first?' Well, because I believe the law is bad, and one would be more justified in the breach than in the observance of it in this queer country of ours, with its climate so variable that the season at Land's End must always be different in all degrees up to John-o'-Groat's. It is this very fickleness that has made me on several occasions kick over the traces in favour of putting second crate *on top* of first, and I will proceed to give a few reasons for this preference.

I will premise that at the last Royal Show an eminent bee-keeper took me severely to task for giving utterance to such unorthodox ideas, and said they were mere *theories*, forgetting that if 'practice is more to be trusted than theory,' the two together are far better than either separately. The practice of the physician is built upon the theory of medicine, and the theory of medicine, *per contra*, is a void until put into practice. As I have been breaking the law again twice lately, perhaps a few of my reasons for so doing may interest your readers.

1. In a changeable climate like ours we cannot count upon a continuance of honey-flow, and need to take off or put on *the top* emptiest crate with facility and little disturbance, according to the honey-flow and the weather.

2. The prising up of a well-propolised crate of sections filled with bees and unsealed honey (absolutely a part of the nest), breaking the cluster in two, is so irritating and upsetting to the workers that when disturbed again somebody gets to know about it.

3. We are told to give more room outside the brood nest by adding frames according to requirements; therefore, why not nadir as Mr. Howard does, or add crate on top, as I say?—for we must remember the almost ball or pear-like shape of the bees reaching from top of No. 1 section crate to bottom of brood, and that it is our duty to allow this bunch-of-grape-like mass to expand itself in the most natural way we can, according to their increase in number.

4. How *unnatural* it seems to cut off the top lot of bees filling a crate of sections, and interpose a cold, empty space, with all its illfittingnesses and unpropolised chinks, with a few strings only of bees connecting them with the main family; and how *natural* it seems to put the surplus room as an attic for the ball to expand into if necessary, and contract from if the weather turn bad, when the attic can be removed without *any* disturbance!

5. Time was when the brood nest was to be split open and sheets of foundation put in and left in (irritating bees again); time is now when the more the brood nest is left alone the better. Time will be when sections above, below, or at sides of bees' nest will be considered best left alone till fit for removal.

6. The *facility* of adding a second on top of a first crate is evident on the face of it, No. 3 on No. 2; equally easy also is their removal as the season closes and we wish to remove surplus. The getting bees driven *down* into incomplete sections out of them is a job, indeed!

7. Were everything *couleur de rose* in Great Britain—plenty of time at one's disposal, a steady flow of honey in settled weather—we *might* cut the concertina in two and insert a new segment; but as things are, I will play my tune with Mr. C. N. Abbott expanding the instrument on top and Mr. Howard below, both

in a rational and natural way. If I have gone to perdition on this point I am in 'very good company,' and I know a few more of 'em.

8. Those who 'go up to the moors with bees,' like those who 'go down to the sea in ships,' know the value of having everything taut and well fastened before setting out. So it is with the undisturbed No. 1 crate; removing No. 2 section by section at the moors, as they are finished off with heather, and leaving No. 1 till the home be reached again. (It is no use to say these will be soiled by myriad footmarks; it is not so. Bees haven't dirty feet at the moors.)

This is an Art
Which doth mend Nature, —
Change it rather; but the Art
Itself is Nature.

R. A. H. GRIMSHAW.

BEE-HOUSES.

[170.] I am much obliged to 'East Glamorgan' for his friendly criticism of my bee-house, which I described in the *Journal*, April 10th, p. 173. 1st. 'E. G.' objects to my hives facing east and west, saying that a south aspect would be better, so that the sun would shine in during the winter, and thus encourage occasional winter flights. These winter flights are of very doubtful benefit to the bees at the best, and if snow is on the ground, hundreds are enticed out. In fact the *B. B. J.* has often advised shading the entrances in winter to *prevent* light being reflected up from the snow, as bees so encouraged to fly alight on the cold surface, from which they never rise again. The chief objection, however, to the south-aspect theory is that the north side of the house would be very undesirable as an aspect, and thus you could only keep half the number of hives in such a house—a serious consideration if *l. s. d.* is taken into account. 2nd. 'E. G.' dislikes the height of the top shelf from the floor; but as my step-ladder has a platform on the top, 3 ft. × 1 ft. 7 in., I have ample room for standing myself, and also for placing smoker, spare hives, &c. I do occasionally tier up four boxes high (usually not more than three); but in that case hives rarely require any other 'manipulation' than removing frames for extracting, and I then remove the whole storey, frames and all. I have long ago learnt that the less stocks are 'handled' the better. My hives hold twelve frames, and I find that when filled with sealed frames they are quite heavy enough for lifting about. I used to use sixteen-frame hives, but gave them up on this ground, and also because they gave too much room at once when tiered up. 3rd. 'E. G.' would like entrances full width of hive. The drawing certainly makes it appears as though mine were only four inches wide; but, as a matter of fact, they are the full width of porch, eleven inches, which I find ample for the strongest stocks. Porches are fitted *outside*, with slides for contracting the entrance. I should not like them *inside* the house, as, if I saw any robbing, &c., I should have to walk round to the inside of the house to contract the entrance, and in a long row, perhaps, make an error as to which entrance wanted alteration.

I shall be glad of further criticism from any one interested in the subject. Will any readers who have tried the plan of heating bee-houses artificially give their experience?—EDWARD J. GIBBINS, *Neath, Glamorgan.*

BALLING QUEENS.

[171.] Kindly give me your opinion on the following:—I was looking at my bees to-day, and at the entrance of a strong stock noticed a scuffle with the bees. It looked as if a robber-bee was being ejected; but on closer inspection I saw it was something more serious, and on pushing the bees off the alighting-board they flew back to the hive, leaving a queen on the ground. I took her up in my hand, and she appeared no worse, though her body was quite shiny and glossy. I returned her to the bees, and waited half an hour to see if she would be again attacked, but saw no signs of further quarrel. She is two years old this spring and a good queen. Drones from this hive are now flying freely, in fact, they are more like a stock at the end of May for strength. I transferred them three weeks ago, and they have continued to do well. They wintered on eight frames, and I added four more to give them room.—THOS. E. GOWER, *Windsor, Berks.*

[The queen has been 'balled' by the bees. It is difficult to account for this curious proceeding on their part. Sometimes queens are balled and killed by their own bees when there seems nothing to account for it; at other times it is the result of over-manipulation, or of excitement during the time hives are being inspected. No serious mischief will follow, for if the bees have resolved on deposing the queen they will again cast her out, but a young queen will be raised in her stead.—EDS.]

SELF-HIVERS.

[172.] There has been so much said lately of self-hiving swarms, that it is the duty of every one to help with any hints likely to be useful in solving the question, so I have sent a rough sketch of my plan, and I should like to know what you, Mr. Editor, think of it. I consider Mr. Bennett's plan better than that of Mr. Alley, only I don't like the idea of placing a large hive in front of the one the bees are working from.

I fancy that a swarm-box, or a box made for the purpose, would be much better. It should be set on the ground, *below* the hive level, with a tunnel, say, one foot long; for I have noticed when the bees swarm that the queen runs straight ahead as far as the alighting-board goes, so I have made mine by placing one end of the tunnel against the hive and the other end into the upper side of the swarm-box, just under the top bar of the first frame in the box. In the latter I place six frames, and a queen-excluder across the front of the entrance, so

that the queen cannot get out. The frames are covered with a carpet in the usual way. I make an entrance in the side of the tunnel, so that the bees can get into the hive without passing through the excluder zinc, for I notice that they rub off the pollen from their legs by going through the zinc; but the way the entrance is made the queen cannot get out. If either my plan or the other can be made to answer, it will be a great help to bee-keepers, for I know what a bother swarming has been to myself during the fifteen years I have kept bees. I have twenty-eight stocks now, all in frame hives, and they are looking fine. I think I shall be able to try the self-hiver in a few days, as drones are flying well.—T. J. R., *North Devon.*

[We shall be pleased to hear how your plan of self-hiving swarms succeeds, and to publish results. It adds considerably to the interest of the subject when several bee-keepers 'think it out' in their own way, and are willing to give the whole community the benefit of their experience. Our correspondent's 'plan' needs no sketch to make it clear. It is simply a tunnel arrangement, one end of which is fixed as in that shown in *B. J.*, p. 128, the other end being inserted in the upper side of a swarm-box set on the ground below.—Ed.]

BEE EXPERIENCES.

[173.] Mr. Chevenix has suggested that I should send you an account of some of my bees' doings last year. Should say they are really quite manageable. But being so very close to our private carway, they at times give trouble. I have been trying to get a more suitable place for them, but it is not at all easy. They are at present in a very nice place, from a bee point of view, sheltered from north and most winds. I have been thinking of getting a few Carniolan queens, but fear they would not be much better, at least, unless I could keep them pure, which would be very difficult. I *heard* that hybrid Carniolans are as bad as can be in the sting way.

I am wandering from my first intention, which was to give you an account of how we were all put *hors de combat* last summer. We had a field of oats to cut, and one corner of it came close up to the bees, only the garden fence between. The direction in which the bees were flying was right over the workpeople's heads, and very low, too. They were flying to a heather bog and mountain (old Slievenamon), about half a mile away. All went well until about eleven o'clock, when I noticed a girl (a neighbour's daughter) getting rather excited, and, of course, suspected the cause. She had her hair flying loose, I believe for coolness, and had no hat on. I went to see how she was going on, and when I reached her some other binders were helping her to smash bees, with the result of bringing more bees to avenge the injury.

I went into the house and got some veils for the girls, but on coming out I found it more serious than I expected, and I asked the master (my father) to let us move to another part until later, but he would not, as a few more cuts would get us out of all danger.

I gave the veils around, and helped the first cause of all on with hers. The poor girl had got a few stings, but was not a bit troubled. I never noticed what a nice-looking girl she was before, and felt very much inclined to go in for a kiss! But I saw my old enemy, the modern bee-keeper round, and perhaps stupidly desisted. Remember to kiss her next time.

In the meantime things were getting pretty lively all over the field. The horses were not minded for a long time, but at last, when passing the battle-ground, they also got into it with a vengeance. Our people have a most delightful way of harnessing; it usually takes about a quarter of an hour to unharness, and with horses plunging, one man down under their feet, bees stinging, men swearing, women shouting, it was a hot five minutes, the hottest I ever remember. We got the horses away from them; I have no idea of how many stings the people got, but the horses probably got thousands; one of the horses would scarcely eat for some days. I got quite forty stings in the face, and though I could not get them out for a long time, as I went along with one of the horses, I did not swell. That was rather strange, as when I began bee-keeping, four years ago, one sting would lay me up for a day. When all the fun was over, our brave knights, clad in armour of proof from the renowned Albert of Milan, charged the enemy and succeeded in rescuing the cannon, which they brought outside the enemy's lines; and we shortly had the artillery in full action again in another part of the field.

If you think the above sufficiently interesting for your readers, I will be glad to give you another sting-story, or if you wish an account of my successful wintering.—Slievenamon, *Carrick-on-Suir.*

IN A BAD WAY.

[174.] Although I have been successful in wintering my two stocks, I have given up hope of doing anything with them this year. First of all, one stock is persistently robbed, and when I succeed in stopping that, the other I find with only drone brood; and, singular enough, the man from whom I got the queen said he had it under his supervision last year, when it bred well. I can do nothing but leave it, I suppose, as queens are too expensive yet, and too risky to introduce. I now find the mortality in the formerly robbed stock is excessive; for at least a fortnight they have died off by the handful every day. I enclose you a few to inspect, fearing it is some disease, although they look healthy.—Honeytown.

[Are you quite sure the queen, and not a fertile worker, remains in the hive which is producing only drones? If the queen is there she is worthless, and you had better unite the two lots. The dead bees show no signs of disease, judging without microscopical examination, for which live bees should be sent to us.—Ed.]

DO QUEENS GO THROUGH EXCLUDER ZINC?

[175.] Seeing the above query a few weeks since in your valuable *Journal*, and your correspondent having asked that others would give their experience of it, I have looked week after week for such, and as I have not seen another experience, I will give mine. Last summer my bees got the swarming fever, and that with a vengeance. I never had a swarm from a box before then, and the bees left sections half full to swarm. Not being desirous to increase my number of stocks I put the bees in a skep, turned it bottom up, put a piece of excluder zinc over it, then gave a few puffs of smoke, and all the worker-bees soon made their escape and returned home, leaving only a few drones and the queen. I never failed to catch her in that way, and I fancy there must have been something wrong with your correspondent's excluder—either the holes must have been too large or the queens very small ones. I tried both swarms and casts and caught every queen. By-the-bye, waterproof coverings have come to the front again just now rather strong, and the question asked, 'What will the cottager do with such contradictory advice?' My advice as a cottager to fellow-cottagers is to have nothing to do with it, but use good, clean hemp carpet, as much as you like.—A. Delbridge, *Parracombe.*

AN EARLY SWARM—FORWARD STOCKS.

[176.] As I supered my strongest stocks the last week in April, I thought I was getting nicely ahead of them, but I had a swarm yesterday, May 1st. They ought to have something to show in the upper storey before the season is over. My stocks are nearly all getting into good working force. I opened one yesterday with nine frames of brood and sufficient bees to crowd twelve frames. They have been doing good business among the fruit-blossoms the last few days.—Gerard W. Baucks, *Green Street Green, Darenth, Kent, May 2nd.*

TRADE CATALOGUES RECEIVED.

W. P. Meadows, Syston, near Leicester; E. C. Walton, Emmanuel Street, Preston; Chas. Redshaw, South Wigston, Leicester; and executors of the late W. Raitt, Blairgowrie, Perthshire.

Queries and Replies.

[35.] *Skeps on Frame Hives.*—1. I have placed a full skep on a frame hive partly filled with comb. Please tell me at what date I may drive the skep and place on excluder, so as to take skep away full of honey? I have fed skep whilst standing on frame hive with 2 lbs. of candy and 1 lb. of syrup. 2. Another skep, filled with comb, has been placed on top of a similar skep. I want to take the top one away as soon as it is filled with honey. When should I drive it? There is not much comb in lower skep. I intend to put on excluder over hole in bottom skep after driving. 3. What is the best way to obtain spare combs? I have placed a box of $14\frac{1}{2} \times 5\frac{1}{2}$ in. frames, filled with foundation, under a standard hive, and am feeding. The bees are fairly strong. 4. Do you advise under or over the brood nest for spare combs for honey-flow? In extracting, will not the *hot* knife injure the honey? Will it not make the honey, when bottled, smell?—City Clerk.

Reply.—It is difficult to fix a *date* for removal of the skep, so much depending on the season and the amount of honey gathered. If all goes on well, and the weather is favourable, lift the skep off about the end of June, and see if the lower hive is well occupied with bees and brood; if it is, you may judge of the quantity of honey in the skep by its weight. If it weighs well, drive the bees; see that the combs are free from brood; and if so, appropriate the contents, or restore it for another week or so, for completion, as may be deemed advisable. 2. Pursue the same course as above. 3. If the frame hive is full of bees, set the shallow-frame box, with full sheets of foundation under it for a few days, and when the bees are fairly at work in it, lift the box, bees and all, above the brood chamber, setting on a queen-excluder between the two. Examine next day, to make sure the queen is not in the upper chamber. 4. Our practice has been to set shallow chamber *over* the brood nest. 5. No. [Please send your name and address (for reference only).—Ed.]

[36.] *Using food from foul-broody hives.*—I have sent off comb to-day. Please reply whether it is foul-broody or not, and what ought I to do with the food left? I fed up in the autumn with from twenty-five to thirty pounds of syrup, with salicylic acid. There are about twenty pounds left in each hive. Bees all dead.—T. S., *Canterbury.*

Reply.—The comb is affected with foul brood without doubt, and should be burned, frames and all. The food may be again used for bees if you boil it for five minutes. Thoroughly disinfect the hives before using. To paint them well inside and out is a good preventive against disease.

[37.] *Self-hiving.*—I have read with much interest the correspondence in your columns about 'Self-hiving Swarms.' I am seldom at home in the middle hours of the day, and fear I have often lost swarms; so that it would be quite worth my while to try the contrivance of a tunnel of excluder zinc recommended by your correspondents. But generally my bees take a long time thinking about swarming before they actually go; and I should be glad of your advice whether it would be safe to keep the tunnel on for three or four, or more days. Would not so long a restraint be likely to cause some degree of exasperation?—F. C. Hodgson, *Twickenham.*

Reply.—A good number of bee-keepers we know are about to make a trial of the 'Self-

hiving Arrangement,' and no doubt some experience of it will be forthcoming ere long. Meanwhile it may be said that it will not be advisable to apply the 'arrangement' until such time as the stock is 'ripe for swarming;' but it is quite understood that it remains on for several days. Indeed, Mr. Bennett's plan specially provides for facilitating the work of the bees while the 'self-hiver' is attached to the entrance.

[38.] One of my stocks has an unfertilised queen, and she is producing a lot of drones. I had thought of killing the said queen. I find I have another hive queenless, and as the bees are pretty strong, would you advise me to give the queenless lot a frame of eggs and brood to raise a queen from, and allow unfertile queen to live a few weeks longer, for the purpose of raising drones for fertilising the young queen?—Tom.

Reply.—Destroy the drone-breeding queen at once, as there will surely be drones on the wing within a few days in your district. Give a comb of brood and eggs to both lots, for the queenless bees cannot be relied on for raising queens.

[39.] *Insects in Spare Combs.*—1. I find some of my combs, put away last autumn, are infested with a little white insect, very much like those red insects seen on canaries in size and shape. Will you please tell me how to get clear of them if they are likely to do any harm? I am now wanting to introduce more combs to stocks, several being ready for doubling. 2. What is the cause of these insects infesting combs? My stocks (seven) have wintered well, and are now breeding very fast. I found yesterday some have brood in eight frames. My best are crossbred from Ligurian queen, introducing pure drones. These are *not the kindest* bees I could wish for, but demons for work. I got from a hybrid swarm last year nearly 60 lbs. of honey by extraction (swarmed May 21st from straw skep). 3. Is not this fairly good?—George E. Corbyn, *Snettisham, Lynn, May 2nd*, 1890.

Reply.—1. The insect may be readily destroyed by fumigating the combs with sulphur, but you may spare yourself any trouble: if the stocks are strong they will make short work of the vermin. 2. It is difficult to name the cause of insects infesting combs. Fumigation before stowing away is the best remedy. 3. 60 lbs. of surplus from a swarm of the current year is more than 'fairly good'—it is a very good return.

[40.] *Weak Stocks.*—I wrote you in November last respecting a stock of Carniolan bees I had, and you replied in No. 387, page 490. To-day (May 1st) I have opened this hive and find that there are only a few bees—about half a pint—in it. I saw the queen all right, but there does not appear to be any brood—are they worth keeping? After I had closed the hive down again and left it for ten or fifteen minutes, I went back, and as I watched I saw the queen come out, fly about for a minute or so, and then off she went; in about four or five minutes she returned and alighted on some palings near the hive; I caught her in a glass, and clipped both her wings before returning her to the hive. Can you give a reason for her leaving, and did I do right or wrong by clipping her wings?—T. G.

Reply.—The bees are evidently a worthless lot and will only be a constant source of worry to you; far better to destroy them. Melt down the combs, clean and disinfect the hive, and begin anew with a good, healthy swarm. The queen's flying off may be attributed to the abnormal condition of the colony—no brood, and almost no bees; there was nothing to keep her 'at home.' Clipping queens' wings is only practiced for a specific purpose, which you had not in view at the time, and it was not a wise thing to do under the circumstances.

[41.] *Excluder Zinc.*—I bought a hive last autumn stocked with Cyprian bees, and want to work them for extracted honey; there are two body-boxes with standard frames, but I fear there is not room for excluder zinc between, as there is only about $\frac{3}{8}$ of an inch space below frames. Would the queen be likely to go up in the top box if I put the frames, say, 2 or $2\frac{1}{2}$ inches apart from centre to centre? There is room for ten frames in each box.—A. Delbridge.

Reply.—The chances are greatly in favour of the queen ascending to top box. If the excluder zinc lies close on the top bars of brood chamber it should not lessen the space below the frames of the upper box in any perceptible degree, and $\frac{3}{8}$ inch is the correct distance below bottom bars of surplus frames. Where there is a less distance than this, the space may be made right by framing the excluder with a light wood frame and allowing the extra space between wood and zinc.

[42.] *Dividing a Stock.*—I shall be greatly obliged if you would tell me if I have done right in the following case. To-day a friend asked me to look at one of her stocks, a swarm of last summer. When hived, the man in charge quietly placed the skep containing the swarm on the top of five frames of foundation and a division-board, put the roof of the hive on, and thus the whole concern was left till to-day. On examination the skep was found full of comb, bees, and brood, the five frames below in the same state, and well covered. I took the skep (which contained the queen) off the frames, and placed it on a stand some distance away; I added three frames of foundation to the hive, and covered it all up warm, in hopes that a queen may be raised in due time. I want to know if the skep should to-day have been differently treated instead of being left as it is; and if it should send out a swarm, which may be soon, as it is very full, can anything be done then?—Z., *Sevenoaks, May 2nd.*

Reply.—If we may assume that you made sure the frame hive contained eggs or very young larvæ, it will go on all right and a queen will be reared in due course. But with regard

to the skep, which, when you moved it away was 'full of comb, bees, and brood,' there is some risk of harm resulting. Nearly all the adult bees will return to the old stand, and, with the chance of cold nights, the brood may be chilled by reason of the comparatively few bees left to cover it. You should therefore wrap the skep as warmly as possible and 'hope for the best.' It will not be likely to swarm; should it do so, treat the swarm in the usual way.

[43.] *Drone-breeding Queen.*—What would be the best thing to do with one of my stocks of bees, which is not getting on well? They were strong last autumn, and wintered on six frames. The queen cannot be more than ten months old if, as I believe, this stock swarmed last June. She is laying drone eggs in worker comb, but not many, if any, worker eggs. There are several young drones and drone grubs dead in the cells. There is a space, about six inches, on one comb, covered with eggs, and a second with about two inches of brood, several of which are dead. Neither of these two combs have the regular, even appearance of most brood. I do not want to get another queen, therefore I must either give them some brood to rear one, or unite them to one of my other stocks, or simply let them alone. I would rather not unite them, as my other stocks are strong enough. —B. L., *Cirencester.*

REPLY.—You are probably in error as to the stock having swarmed in June last; unless, by some mishap, the young queen left in the parent hive has never been fertilised. Either this is so, or the queen is old; but in any case the queen is valueless, and the stock will not be worth re-queening. It may be allowed to die out, or be mercifully destroyed.

[44.] *Sending Swarms by Rail.*—I am anxious when my bees swarm to send a swarm as far as Devonshire, to my brother. Will you kindly tell me the best way to pack them up and send them safely?—M. H., *Alton.*

REPLY.—Please refer to query below.

[45.] *Swarm-box for Travelling.*—What is the best kind of box to send swarms away in? How should it be ventilated, and about what size and thickness of wood?—A. N. H., *Dorset.*

REPLY.—For a description of a properly constructed swarm-box, made for transit by rail, we must refer you to any appliance dealers' catalogue, where such things are illustrated. A rough box of any kind will answer the purpose if care is taken to have it well nailed together. It may be square or oblong, about same capacity as a straw skep, with ventilating apertures about 6 × 3 in. cut in each of the four sides, and securely covered with perforated zinc. The bottom of box must be screwed on, not nailed, so that when removing the swarm the screws may be withdrawn, and the bees readily shaken out of box *en masse.* The box should be securely tied with a strong cord for carrying. We have safely sent swarms long distances in a 'soap-powder' or a 'chocolate' box, bought for a few pence.

Echoes from the Hives.

News from Canada.—I have been very busy. Have not lost a colony that I put away to winter, and two came through unexpectedly that I had set aside to destroy. The winter has been very mild, and I am now in the mildest part of Ontario. They say at times there are full cards of brood in January. I purpose increasing my forty colonies to eighty or more, and with the store will have a very busy season. —R. J. HOLTERMANN, *Romney, Ontario, April 9th,* 1890.

Sunderland.—Of our seven stocks, one has lost its queen this winter; but the remaining six are in first-rate condition, and have for the most part abundance of stores and rapidly hatching brood. The season is decidedly a forward one in spite of cutting east winds, which check much flow of honey and mar the freshly unfolded leaves. The first drone appeared on the wing to-day, and the bees, taking advantage of the bright sunshine, have been busily engaged in carrying pollen and, I think, a little honey from fruit blossom.—F. GAYNER.

Parracombe, near Lynton, North Devon, May 2nd.—We are having a fairly good time for our bees around here, though the wind has been rather high at times. I transferred one of my stocks to a clean hive on April 30th and found it in good trim—eight frames well covered with bees, five with brood, having also drone brood sealed and plenty of pollen. I have brought my ten stocks through the winter all right, and stronger now than I have usually had them at the latter end of May. Several stocks have died round here for want of 'feeding up,' A neighbour has over thirty stocks, and I don't know that he has lost any for want of food, only one through fighting—not so bad, eh?—A. DELBRIDGE.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

A. ODDY.—Full information regarding third-class certificate may be had on application to Mr. J. Huckle, Kings Langley, Herts. Subscriptions sent *direct* to this office will ensure delivery of *B. B. J.* by post every Thursday morning. We cannot be answerable for the delay of country booksellers.

ANOTHER IRISHMAN.—We see no possible good which could result from publishing your strictures on the gentleman named. We congratulate you on being able to command a higher price for your honey than the other is

retailed at; but surely that is your gain and his loss, and so long as you can 'command' a good figure you ought not to complain.

SUSSEX.—*Fertile Worker Brood in Combs.*—Cut out the portion containing the dead drone brood before again using the combs, preserving only those which are clean and good; melt the rest down for the wax.

A. N. MARTIN.—The packet contained no seeds, only the dried portion of some plant, mostly the dried calyxes of male flowers, with which we are unacquainted.

*** *Several letters are held over till next week.*

NOTICE.—We would ask our correspondents to take notice of the removal of our office, and to request them in future to address all communications relating to the literary department, &c., to 'The Editor of the "BRITISH BEE JOURNAL," 17 *King William Street, Strand, London, W.C.*'

THE

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Editorial, Notices, &c.

POPULARISING BEE-KEEPING.

Beyond what was said last week, there are other and very important channels already opening up whereby we may reasonably hope to see bee-keeping made more popular than hitherto. The advantages gained by the presence of a goodly number of bees in districts where fruit is extensively grown are only now being fully understood and appreciated, and eminent men who are just now especially engaged in fostering and promoting all that tends to improvement in the cultivation of fruit, are now for the first time made fully aware of the important part bees fulfil in fertilising the blossoms of our fruit-trees.

Sir James Whitehead, President of the Fruiterers' Company, has evinced much interest in the subject, in consequence of information conveyed to him through the Chairman of the B.B.K.A., and we may be sure that good results will follow should these two bodies take combined action in the direction of blending instruction in bee-keeping with that on fruit-growing. In this connexion may be seen the first signs of an improvement in the condition of that important factor in our subject—the bee itself—which is very pleasing to contemplate; for, with a small percentage of exceptions, the 'little labourer' has met with but scant consideration at the hands of gardeners, chiefly, as we think, because the habits and culture of bees have been so little understood by them. And so, if technical instruction in horticulture and bee-culture is to go hand in hand, we may hope that gardeners will be included among the best friends of the honey-bee instead of being counted among its enemies, as a good many we know have been.

We shall hail with delight the day when gardeners, instead of endeavouring, as many do, to instil their own prejudices against bees into the minds of their employers, will make a point of making 'the bees' a department of their work; and there is no reason why they should not feel as proud in setting a dish of fragrant honey-comb on the breakfast-table at 'the house,' as in arranging the most beautiful bouquets for the mistress or master. A great deal of prejudice formerly existed against bees as damagers or destroyers of fruit, and to this day there is a certain amount of belief that they do mischief in this way: but as our gardeners are educated to a better understanding of bees, we feel sure this prejudice will pass away. Bees do not damage fruit! is what we assert; and there has just come to hand from an unknown correspondent (very opportunely so far as confirming our contention) a copy of an American paper, in which an account is given of a meeting of the Rhode Island (U.S.A.) Horticultural Society, held for the purpose of hearing a paper read on 'The Relation of Bees to Fruit,' and of discussing the question of whether or not bees injure fruit. At the close of the proceedings it was resolved 'that the Society endorses the statement that bees do not injure sound fruit, and that they are more beneficial than harmful.' This is an important expression of opinion coming from America, where bees and fruit are far more extensively cultivated than here, and where not long ago attempts have been made to damage the character of the honey-bee in this respect.

In still another direction there is a spirit of inquiry cropping up in several places, far apart, as to the feasibility of a plan for having bee-keeping taught in our public schools, as in Germany and elsewhere on the Continent. As a result of these inquiries, there is a prospect of the publication of a set of diagrams, drawn on a large scale, suitable for hanging on the walls of schoolrooms, and illustrative of the bee and its products. Surely, with these incentives before us, combined with the fact that most of our appliance-dealers are at present so full of orders that some are working 'from dawn to dark,' and yet cannot keep pace with the wants of customers, there is every reason to believe that bee-keeping will receive a considerable share of public attention this year if favourable weather prevail for the next few weeks.

All this involves an amount of care and caution on the part of those who hold the guiding reins and are responsible for the directing of the popular bent. Our personal view, as stated last week, is to increase the number of small bee-keepers, amateurs in every sense, who will be content with their two or three hives, and never be tempted to launch into the hard work connected with the care of two or three dozen stocks of bees, under the impression that the way to fortune is 'through a beehive.' Rather let us point out to our would-be bee-keeper the fact that there is as much difference between keeping a few bees for pleasure and managing a large apiary for profit as there is between the care of a small greenhouse and the labour of

working a market garden. When the analogy between these two positions is clearly understood there will be fewer over-ambitious attempts made, liable to end in failure and disappointment; while by working upon the lines we have indicated, there is every reason to believe that the popular side of bee-keeping is just now showing more encouraging signs of development than ever. The terrible year of 1888 gave a blow to the cause from which it only partially recovered in 1889. Let us, therefore, venture to express a hope—which 'springs eternal in the human breast,' but to which the bee-keeper especially clings—that the year 1890 is destined to be favourably remembered in our records, and that a sunny June and July will 'bless us every one.'

USEFUL HINTS.

Weather, Forage, &c.—This to the bee-keeper means almost everything at this time, and very fitful and tantalising has the weather been since our last 'Hints' were written. Jupiter Pluvius has been very much in evidence, more so than is good for honey-gatherers; but the rain has made foliage and flowers everywhere look extremely fresh and beautiful, and whenever the sun's rays have managed to pierce the dull, watery clouds, the effect on bees has been wonderful. It has shown us how very strong the majority of stocks are, and given good earnest of the excellent condition they are in for undergoing the labour of the honey-gathering. More continuous sun and warmth, however, will be needed before we can expect to hear of 'filling supers,' and we must take what comfort we can in the 'ripe' condition in which stocks now are. If readers will take extra precautions against a possible outbreak of bright sunshine and warmth which may set the bees 'a-swarmin',' there need be no depression because supers are not being filled just yet; but so soon as signs of 'building' are seen, such as the white appearance caused by the bees lengthening out the cells in upper parts of the combs, supers should be set on without delay. If covered up warmly, no perceptible cooling of the brood need follow, and the bees finding *room* and *work* supplied to them put off preparation for emigrating. Later on, if surplus still comes in slowly, full sheets of foundation may be given in shallow frames below the brood chamber, if, by any adaptation of the 'Paragon' system to the hives used, the queen can be prevented from entering the shallow frame boxes. The advantage of allowing bees to build combs in 'slack times' *below* the brood nest is manifest in the fact that feeding need not be interrupted, and it must not be forgotten that in many districts there will still be less natural food coming in than will maintain the daily increasing thousands of mouths feeding on food they have had no hand in gathering. No more 'useful hint' can be taken note of than bearing in mind that great quantities of eggs are in spring laid by queens only to be eaten by the bees, or disposed of in some mysterious way, if a strong stock is on the verge of starvation; whereas, when a continuous supply of food, natural or otherwise, is coming in daily, the bees hatch out and mature all the eggs a queen can lay.

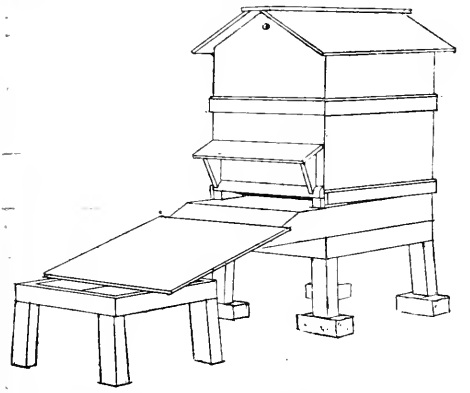
Drone-breeding Queens.—Quite an unusual number of these have been sent to us for examination within the past fortnight, some cases being reported in our query column, but for the most part post replies have been sent. There is some reason to fear that the admixture of foreign blood has something to do with this; certainly we had no such frequency of virgin queens at work in spring laying drone eggs when none but the old British bee was kept. If this can be clearly demonstrated, and we can have it proved that the more easily excited nature of the foreign races causes the bees to kill off their own queens at unseasonable times, it may, perhaps, have the good effect of restraining undue interference with bees, and thus prove a blessing in disguise.

'Chilled Brood' and 'Spreading Brood.'—Nothing causes us more, shall we say, 'sorrowful irritation' than to have large slabs of comb sent full of what has been plump, healthy brood, dead! with the inquiry, 'Is this foul brood?' Five cases within the last past eight days have been submitted for our opinion, and in four of the five foul brood was suspected as the cause of the brood perishing. In one instance our correspondent destroyed bees, frames, and combs without waiting our reply, so certain was he that foul brood was present. We were very pleased to report freedom from that pest, while deploring that so much mischief is unwittingly caused by the practice of spreading brood without full knowledge of all the care and skill required to carry it out successfully. Far better to give up the practice altogether than bring about the many disastrous complications resulting from combs of dead and decaying brood being allowed to hang in the hive by the side of cells full of healthy larvæ. We say, 'Cut out the portions of comb containing the dead brood rather than render the atmosphere of the hive fœtid, or compel the bees to remove the objectionable cell contents.' We cannot dismiss this portion of our subject without venturing a strong 'hint' as to the wisdom of giving up the practice of spreading brood entirely until experience has taught when it may be safely done and when it is best left alone.

Swarms.—Last week we chronicled the first swarm of the season reported so far. It issued on May 1st, at Darenth, Kent. Since that date the weather has been so changeable, with frequent rain, that we shall probably hear of no further swarms for a day or two; but as the unexpected always happens, it will be well to look up and have ready the straw skep for hiving in, as well as seeing that stands are levelled and frame hives got ready for receiving swarms should they come. We are glad to notice a general predisposition of late years to prefer natural to artificial swarms. A few years

ago the bee-keeper who did not 'swarm his bees' was considered behind the times. Now, better counsels prevail, and, except in cases where actually necessary, bees are allowed to swarm naturally, to the mutual advantage of bees and bee-keeper. This year special attention should be given by way of feeding early swarms for a day or two in case of wet and cold weather following their being hived.

Hiving Swarms.—Novices are so constantly asking advice of an elementary character that it becomes unavoidable with us to repeat information which has already been printed in this column, and so with hiving swarms we are still asked 'how to do it.' When a swarm is seen to be 'coming out,' our plan is first to note which hive it is from, then quietly allow the swarm to 'settle' while we are preparing to 'take it.' The skep, a light ½-in. floor-board, a tablecloth (or a newspaper will do), a couple of wooden wedges for propping up the skep, and a step-ladder, are got ready. By this time the bulk of the bees will have settled. If the cluster of bees are within easy reach they are shaken into the skep, the floor-board laid over them, and while skep and floor-board are firmly pressed together with the hand, the whole is turned over bodily and laid on the ground, or on a stand. Just a moment is allowed for the bees to get 'hold' of the straw, then one side of the skep is raised up an inch or so, and the wedges slipped under (don't mind the outrush of the bees when this is done), and the swarm—shaded from the sun by the tablecloth if necessary—is left to gather within the skep while



the operator proceeds to arrange the frame hive already prepared for its reception. The actual operation of transferring the swarm from the skep to the frame hive must of course vary according to the particular form of hive used. Practical men also have their own preferred methods of doing things, and we have no desire to interfere with the 'ways' of others. Some sprinkle the swarm with a garden syringe to 'cool the bees;' others 'hive' by throwing the swarm on the top of the frames; some never transfer the bees till sundown (a very good precaution for amateurs to take), and so on. We will therefore suppose that an ordinary frame hive is used, and give our own plan as follows:—The hive, prepared as in sketch, is understood to be quite in order *inside:* frames fitted with foundation, either in strips or full sheets, or with comb, as the case may be. All quilts, except a single light one, are rolled up and laid across the single one used while the swarm is 'cooling down.' As will be seen, an extra 'stand' and a good-sized board are required, and these are placed as shown. The hive is propped up in front a couple of inches, and all is ready. The bees are next carried to the frame hive and thrown out on to the platform in front, and may be left to 'run in.' Should the swarm have come from a stock with a lot of unfinished super work on it, and the season is well advanced, we remove all surplus chambers from the parent hive and give them to the swarm, which is placed on the original stand, the swarmed stock being moved to a new position.

Want of space compels us to reserve a few 'Useful Hints' till next week.

Selected Queries.

From 'American Bee Journal.'

Which do you find the best plan to prevent swarming—giving abundant room by tiering one set of combs above the other, or giving the necessary room below, all on one level? Or what other preventative do you use?—England.

Give room above.—A. B. Mason.

Extracting is the only effective method that I have tried.—R. L. Taylor.

By putting one set of combs above the other.—H. D. Cutting.

Tiering up above. Giving room below, or on one level, is not practical, though it is practicable.—Dadant & Son.

I think it is about six of one and half-dozen of the other, as to which plan is used.—J. P. H. Brown.

The upward tiering plan, as you describe, increasing the storing room to the capacity of the colony.—J. M. Hambaugh.

Either plan works well for extracted honey. Neither will secure the desired result when working for comb honey.—G. M. Doolittle.

Tiering is, in my judgment, the better of the two. It would take too long to describe other methods and devices that we practice.—Mrs. L. Harrison.

I never had any success with either plan. Keep the queens' wings clipped, and destroy all queen-cells as long as the swarming fever lasts.—P. L. Viallon.

Why try to prevent swarming at all? You can keep them back for a time by giving plenty of room, either at the top or the sides, if given before they start queen-cells.—C. H. Dibbern.

I find the best and only satisfactory manipulation to prevent swarming in the divisible brood chamber, and worked by alternating the upper

and lower halves of that brood chamber—of course, always furnishing plenty of surplus room at the same time.—JAMES HEDDON.

I have never used the second plan mentioned. The first succeeds in perhaps one-half of the number tried. If tiered up at just the right time, swarming is controlled in a majority of cases.—EUGENE SECOR.

I do not know how to prevent swarming. Increase of room for the queen will help, I think, and I do not think it makes any difference whether you give her room by tiering up or spreading horizontally.—C. C. MILLER.

Giving room below seems most effective; but 'tiering up' is most useful to the keeper of bees. The successful bee-keeper studies to attain what *he* wants first. What the bees want is a secondary matter.—J. M. SHUCK.

If combs are to be built by the bees, room above the brood nest will be more effective than below. An upper storey from which the honey is extracted as soon as it is sufficiently evaporated, and abundant ventilation, will generally prevent swarming. I have found ventilation at the top of the hive of great advantage.—M. MARIN.

I am careful to 'tier up' as fast as the increasing colony needs the room. No neglect is admissible at this time. The 'tiering' is all done above the brood department of the hive until a swarm issues; if the top tiering does not prevent swarming entirely, then I tier downward; that is, I place a super with combs, guarded with a metal queen-excluder, below the brood department, and send the swarm back home. This management separates the queen from the old brood department, and compels her to commence anew below.—G. W. DEMAREE.

A combination of both; but I find the best plan is that of close-working frames in the brood chamber, only bee-space apart. This plan prevents swarming and the building of bridge combs; and also forces the bees into sections as soon as they are put on.—J. E. POND.

Much room by tiering up tends to restrain swarming. With the best hives it is impossible to give room horizontally, and I do not think that it would be any advantage if we could. I once used the long (New Idea) hives, and could not see that they were an advantage. Removal of the queen is the best way to certainly prevent swarming.—A. J. COOK.

A large, roomy hive is the best preventive against swarming, next to the frequent use of the extractor. The room should be given *above the brood, always;* for it is the instinct of the bees to store there, and they do so to the best advantage. If plenty of empty combs are placed above the brood on all hives, there will be few swarms that will issue, even in a good honey-flow.—G. L. TINKER.

Either plan will give relief to the colony, and sometimes prevent swarming—but neither can be relied upon at all times to keep the colony from sending out a swarm.—THE EDITOR.

ADDITIONAL REPLIES TO SELECTED QUERY No. 7.

Locality has a great deal to do with this question. Here, in Yorkshire, where unfortunately I have rarely an opportunity of getting two crates of surplus in the summer honey-flow, I should (in anticipation of going to the moors) leave No. 1 where it is, firmly fixed. Then, more room wanted, and No. 1 nearly complete and packed with bees, I should, without much disturbance, give a puff of smoke and put *No. 2 on top of No. 1.* Should unfavourable weather set in, as it often does about finishing-time, No. 2 can be taken off and extracted, safely and quietly. The hive and No. 1 can, without further fixing of frames, &c., be safely removed to the moors, when Nos. 2 and 3 may be put on top as occasion requires. Here, as I said, our surplus is of so precarious a nature that I remove a few completed sections at a time from No. 1, constantly replacing with empty ones till heather-time. Other men other manners, according to their environment.—R. A. H. GRIMSHAW.

It is much the best to place the second super under the first, and if it be desirable to use a third one, place it under the second. Bees always store as high in the hive as is possible, and if extra crates be put on the top, they would fill these with stores taken out of the partly filled sections, thus causing extra labour; besides, it would result in having discoloured sections.—HENRY BESWICK, *Tibenham, Norfolk.*

Place No. 2 under No. 1, No. 3 under No. 2, No. 4 under No. 3, &c.—M. WHITTLE, *Lockinge.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 1st page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OLD *VERSUS* MODERN SYSTEMS OF BEE-KEEPING.

[177.] Will you allow me a little space in your valuable paper for a few remarks on bee-keeping? For the last twenty years I have kept bees—not on the modern principle until the last three or four years. Not longer than five

or six years ago I used to think I did well if each stock when taken up gave me 15 lbs. to 20 lbs. of honey, at the same time destroying all the bees from those 'taken up;' and, further, as summer advanced, how I watched for my swarms—the more I had the greater was my delight. But, oh, what a radical change has taken place since then! My ideas have been completely turned upside down. Just notice the change, for which I have to thank you, Mr. Editor, and your correspondents. Last year I worked eight standard bar-frame hives, ten or eleven frames in each; some I worked for sections, the others for extracted honey. From these eight hives I took close upon 500 lbs. of beautiful honey. I have up to the present wintered my stocks on seven or eight frames, and as spring and summer advances I give, as they require them, frames of foundation, until they have ten or eleven each; then, when they are quite crowded and honey begins to come in, I put on my sections and shallow frames.

When a swarm issues I take off the crate of sections, set them on one side, take out each frame, and carefully cut out every queen-cell. When I have gone through them I replace my sections and cover all up nice and snug; then I go to the swarm which is hanging on a bough, shake them into a skep, take them to their old home, and throw them down in front of the hive. They at once run in, and work seems to be commenced again more vigorously than before the swarm started. This is a little how I have managed during the last two or three years. But my thanks are due to the *British Bee Journal* and its correspondents for their valuable assistance. Some of them I have the pleasure of knowing personally, Mr. A. Sharp, for instance. I remember paying him a visit in company with a friend last summer, and how kindly he and his good wife entertained us, Mr. S. taking us through his apiary of some thirty stocks and explaining matters of importance to us. I merely give the above to show the assistance one bee-keeper can render to another, and the difference in my own experience between the old system of bee-keeping and the new.—THOMAS FLITTON, *Steeple Morden, Cambs.*

FREE ACCESS TO SUPERS—PREVENTING SWARMING.

[178.] Will you please allow me a small space in your valuable paper to ask whether any of your readers have tried the following plan in working for section honey, viz., when a hive has been brought up to twelve frames crammed, to place a queen-excluder behind the first two frames from the front (being sure, of course, that the queen is on the frames *behind* the excluder), then placing the supers as far to the front over the two frames divided off as possible?

My object in placing the excluder behind the first two frames is that the bees might use them as the means of ascent to the supers without having to pass through the excluder, at the same time preventing the queen from leading off a swarm just when the honey-flow is at its height, as is often the case, and the prospect of a large surplus gone. I suppose the queen would scarcely have the instinct to pass over the top of the excluder, but would endeavour to gain the entrance of the hive in the usual way underneath the frames. Would any of your readers kindly give their opinions of this suggestion?—H. MUSGROVE, *The Hollies, Sidcup.*

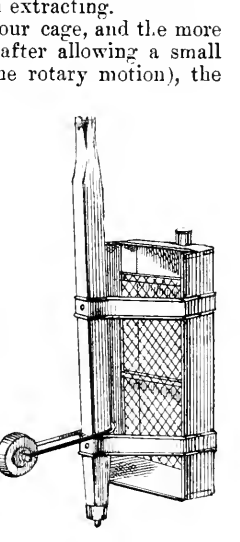
[Your plan is similar in principle to that of Mr. Howard's new 'Paragon' hive, though not so thorough as the latter. If adopted for surplus chambers, other than sections, the *top* of frames will also require to be covered with excluder zinc. Then, what about the poor imprisoned drones?—ED.]

IMPROVED 'LITTLE WONDER' EXTRACTOR.

[179.] Having often felt when using the 'little wonder' extractor that there was an enormous waste of muscular power compared to that expended in using a cylinder extractor, I was led to devise an arrangement for lessening the labour, which I have much pleasure in submitting *pro bono publico.*

If your readers will put a heavy comb in one side only of the cylinder extractor, and try to rotate, they will find the whole arrangement kicks violently. There is no other word for it. But immediately on placing a fairly equal comb in the opposite cage the kicking subsides, and the extracting of the two combs proceeds more easily than one did previously. So with the 'little wonder,' the weight is all on one side, and the muscular efforts used to restrain the tendency to kick are considerably greater than that actually expended in extracting.

Theory says balance your cage, and the more nearly you can do this (after allowing a small margin for setting up the rotary motion), the easier it will work.



So early last summer the almost discarded 'little wonder' was brought out from its retirement, and a balance weight, as shown, was affixed by the local gas-fitter. It consists of an arm attached with screws to the wooden rod, and having fastened securely at the end a leaden weight heavy enough to nearly balance the tinwork and cage, care being taken that the addition did not project further from the wood than the outside of the opposite cage, to prevent the slightest chance of catching against the user's legs. Mine cost me a couple of shillings, but I feel sure that if made in quantity, and by using

a cast-iron balance weight, it could be supplied at about half that price ready for fixing.

It only remains to say that the practical working of the improved 'little wonder' was very successful both in ease of working and increased speed, and I hope many of your readers will try it and report to the *Journal*.—THOS. W. OETZMANN, *Wrotham, The Vale, Broadstairs.*

SHALLOW FRAMES.

[180.] I am sure you and your readers must be thoroughly tired of the above heading, and the long and narrow discussion about the 4¼-in. frames; but my apology for again troubling you on the matter, especially as I feel I have said all I had to say, is that courtesy seems to demand some notice of 'W. B.'s' letter (No. 147). As to the unsuitability or otherwise of combs spaced 1⅝ in. from centre to centre for rearing brood in, the seventeen out of forty-five which my bees had so used were all occupied with worker brood except a few square inches. There were also a few occupied with drones, about three or four as well as I remember, but having melted them down before writing on the matter, I cannot state their number exactly. That was, however, of infinitesimal importance to me compared with the fine, thick slabs of honey I had to extract at the end of the season. In passing, I may add that I often have my combs spaced even further than 1⅝ in. apart for winter and early spring, without any apparent influence on the size or state of the brood nest.

I need hardly comment on the probability of the brood in these shallow frames over the brood nest of a strong colony getting chilled. I was not unacquainted with Mr. Stanford's apiary about the time of the letter referred to, and do not think he experimented to any extent with the method mentioned. And as to preventing swarming, I find that is accomplished sufficiently by giving in good time room above and ventilation below, by which means I have had an average of about one swarm per annum from eight hives for the last five or six years.

In proposing to pack the shallow frames away for winter in their summer boxes, Mr. 'W. B.' loses sight of the winter use of those boxes—lifts for the frames, and very efficient they are too for the purpose, as the condition of the bees, now that I am giving them clean hives, testifies. I put a rack of sections on one of them yesterday evening, the 6th, and found them occupied this evening. — MATTHEW HY. READ, *May 7th*, 1890.

[The discussion on the subject of 4¼-in. shallow frames may, we think, now be allowed to drop. It is, of course, open for any and every one to adopt appliances of whatever size and shape each may consider best, and we gladly give insertion to such reasonable views as convey anything likely to be of general service to bee-keepers, out of which lasting good may come. At the same time we cannot refrain from expressing the opinion that there is a very small chance of the 4¼-in. frame coming into general use. Prior to the happy adoption of the standard frame, confusion as to size everywhere reigned; interchangeability was impossible, the bee-trade was hampered, and progress was naturally impeded. Fortunately this state of things is at an end; buyers and sellers can now 'get on,' and, as a consequence, the standard frame 'holds the field.' The same with sections of all sizes and shapes until, as a 'survival of the fittest,' the 4¼-in. by 4¼-in. section for comb honey is almost as firmly established as is the standard frame for a brood chamber. In like manner has the 5½-in. frame forged its way through the many discussions of the past three or four years as the most suitable size in shallow surplus chamber for extracted honey, and as bee-keepers have adopted it, every manufacturer in the country now makes and stocks it. Without entering personally into the general question of the sizes of frames, spacing of frames, &c., it is our duty to sum up the discussion with a word of guidance by way of keeping readers in the straight track; and we say that nothing has been advanced to alter our view, which is that the standard frame for brood chambers, the 4¼-in. section for comb honey, the 5½-in. frame for extracted honey, and the 1⅜-in. (bare) spacing for frames are the 'heads of grain' which trial and experience have sifted from the chaff, and that these will be the 'standards' of the future.—ED.]

WHAT IS HONEY?

[181.] What is digestion? It is the act by which food is so changed that it can be absorbed, or can pass from the stomach to the blood. Water and salts are already in that condition, and so need no digestion. White of egg, muscle, starch, and cane sugar, are not in that condition, so they must be digested when taken as food. Whatever animal, then, eats cane sugar, must digest it. This digestion simply changes the cane sugar to a reducible sugar, one of the glucose group of sugars. This reducible sugar is just as wholesome as is the cane sugar; and as it needs no digestion it may be more healthful food than the cane sugar. One of our Michigan physicians has told me that he believed that honey, for this very reason, is a more wholesome, a more healthful food, than is cane or common sugar. Nectar is cane sugar dissolved in water. When the bee sips the nectar she adds to it the secretion from the four large racemose glands, which empty into a single duct right at the base of the tongue, where the nectar enters the mouth. These pass together into the honey-stomach, and here the honey digestion takes place. Indeed, there is nothing in the honey-stomach except the nectar, or honey, and the pollen which is sucked in with the nectar. This pollen is mostly separated from the honey by aid of the stomach-mouth, as shown by Schiemenz, before the bee reaches the hive. Thus, only the honey, with possibly a little pollen, and, if the bee is collecting very rapidly, some still undigested nectar, is emptied into the cells when the bees reach the hive. The nectar was cane sugar, neutral, and turns the ray of light to the right. The honey is reducible sugar, acid, and turns the ray of polarised light to the left.

Now, these are all facts, as certain as that bees gather sweets from flowers. As they are facts —long well known to science—it is our duty to

accept them, even though they were unwelcome. But why are they unpleasant? Reducible sugar is as clean, and possibly more healthful, than is cane sugar. A healthy secretion is added to change the sugar; but milk is a secretion, and we regard it as one of the most inviting and wholesome of foods. The digestion took place in the honey-stomach, a clean reservoir from whence it comes, any way, so no one need object to that. Although honey is certainly digested nectar, there is nothing in this that should alarm or disquiet anyone. It is clean, wholesome nectar, transformed in a clean vessel by aid of a clean, wholesome secretion. People who have not studied the question of digestion may associate something unpleasant with the word. This is quite uncalled for. It is not the digested food that is unsavoury; *that* is pure and sweet, and fit to go to the blood which receives it. It is the indigestible part of the contents of the stomach and intestines, together with the excreta, that are unclean. These are found only in disagreeable form in the lower part of the intestines.

I will say that this view is not original with me. It is found in all works on physiological chemistry, and all works that treat fully on the scientific part of bee-keeping.

Does some one say, 'Well, what of it?' Only this: Any truth is important. We may never know when facts may bear practical fruit. Some may have thought that Franklin was at small business when he was tripping lightning with his kite. Would they have thought so could they have looked ahead and seen the telegraph, telephone, and electric motor? Though we may safely doubt any scientific statement in silence, we should never deny such until we have carefully tested the matter.—A. J. Cook, *Agricultural College, Mich.—Gleanings.*

AIDING ARTISAN BEE-KEEPERS.

[182.] I am a reader of your paper, and have enjoyed it very much, but unfortunately I have not got any bees, and can only, therefore, fancy the pleasure there must be in keeping them. I have often wondered why, seeing that such a lot of rich and influential ladies and gentlemen patronise the B.B.K.A., some one of them has not struck the idea of supplying the poorer class of would-be bee-keepers with a good hive and stock, with also the necessary implements for a beginner, and allowing him to pay back the sum advanced by instalments, according to his means. I am sure it would be doing a good action, and would turn out a success, supplying the cheapest and best things (no fancy articles). I think it would make a great increase in the number of bee-keepers, and I myself should be one of the first to apply for a set.—D. M.

RAITT HONEY PRESS.

[183.] I notice in your paragraph *re* above, on page 60 of *Journal*, you are called upon to make a correction which is practically unnecessary.

For ages past a press similar to Mr. Thomson's has been in use for various chemical and household purposes, fruit, &c. Our late lamented friend Raitt invented the only press ever made working with a horizontal screw, so as to expel honey from cells in a sideway manner, without the necessity of mashing wax, &c., up, and driving honey through it.

In the Raitt press the container is made the size of comb, and honey from both sides comes out as screw is actuated. In the other only one side of comb comes in contact with perforations, the honey on other side having to be driven through midrib and all mashed up together before honey is expelled.—W. P. Meadows, *Syston, near Leicester.*

COMPOSITION FOR PAINTING HIVES.

In the *Beehive*, G. P. Newman gives a composition for painting hives that he says will last for years. The composition, he says, is simple, impervious to water, and is the following:—Resin, one-third; beeswax, two-thirds; and a little mite of tallow may be added in proportion to the surface covered. Dissolve the ingredients together and apply while warm with a compact pad of cloth. One coat is sufficient if well and evenly spread, especially at the joints. Sometimes it is necessary to warm the surface to be covered. This composition is a prime wood-filler, and retains a firm body for a long time under all conditions of weather.

BEES AS MISSIONARIES.

The bee is almost as much a part of choice fruit and beautiful flowers as the branches upon which they grow. The flower with its honey and the bee are factors in one of nature's most beautiful and interesting problems, and through the intricate workings of this problem are born the brightest colours, finest perfumes, and richest flavours. Countless flowers are fertilised by the bee, which would otherwise perish from the earth; but it does more than this, it carries pollen of self-fertilising plants from flower to flower, thus preventing constant in-breeding and consequent deterioration. In fact, the bee is nature's protest against incest; and by resultant products of superior beauty and flavour, when the protest is heeded, teaches a powerful lesson on the great subject of the proper and healthful propagation of species. Where bees are not, fruit and flower show the effect of a violation of nature by slowly but surely degenerating. The bee is as necessary to the flower as the flower to the bee; in conjunction a harmony is produced which results in more brilliant colours, in sweeter flavours, and richer perfumes to regale the senses of man.—*American Bee Journal.*

Could I write, with ink unfading,
One brief code for youths and men;
Could I show its all-pervading
Power in progress, I would pen—
'Try it.' *The Current.*

BEES UNDER THE BED.

One very common way which the people of this particular corner of the world have of building their one-storey or storey-and-a-half houses, is as follows:—A foundation of cobble stones have been laid where the side walls are to stand, and perhaps also where the back of the house is to be, two broad planks are fastened on their edges between upright poles set in the ground on each side of the foundation, and damp earth is put between them and pounded down hard. The planks are then raised one course higher, fixed firmly in place, and more earth put in and stamped down, and so on till a height of ten feet or so is attained. Then a wood frame is put up inside of these walls. If the house is designed for a shop or store, the whole front consists of movable boards sliding in grooved pieces at top and bottom. This is the general plan on which many a Chinese inn is built. To economise space, the tavern-keeper generally has a *box-bed* for his own use. This consists of two boxes, each one about $3 \times 3\frac{1}{2}$ feet in length and breadth, and $2\frac{1}{2}$ feet or more high. These two boxes, set side by side, make as good a bedstead as most Chinamen have. I was resting in front of a tavern one day last February, when I observed a string of bees pouring in and out through a crack between the corner-post and the earth wall on my right. Through the obligingness of the landlady I was enabled to investigate the matter. There in that corner of the building stood one of these box-beds. Rats had gnawed a hole in the lower corner of the box at the bottom, close by the crack, and through this crack and rat-hole the bees had come in and taken possession of the box. The landlady told me that they came of themselves in the previous May, and that she cut out their stores last fall. They had nearly half a bushel of new white comb partly filled with clear honey. Rape, which is much cultivated here as a winter-spring crop for making rape-seed oil, was just coming into bloom, and the bees were doubtless at work on this. In fact, ten days of mild weather had started a number of wild plants to blooming, and the bees were booming. Chinese bees always seem very docile. Rape honey is said not to be equal in flavour to tea honey. The tea-plant blooms in December.—J. E. WALKER, *Shaowu, China.—Gleanings.*

The common honey-bee, notwithstanding the bustle and activity of the hive, enjoys its share of repose as well as other insects, even amidst the apparent commotion of its own dwelling. Huber observed that his bees often inserted their heads and part of their bodies into the empty combs, and remained there for a considerable time. They were then quietly sleeping in the cells. At other times they appear to sleep for short intervals on the surface of the combs. I have seen them towards the latter end of summer sleeping in the cells in great numbers for many hours together.—G. NEWPORT, *On the Temperature of Insects.*

Queries and Replies.

[46.] *Bee-management.*—I have four stocks all well housed. Three of them are each possessed of six goodly packed frames of brood, eggs, &c., end to end and top to bottom; the fourth is on three frames, with one of eggs, inserted yesterday. I cannot reach the enviable condition of having hives 'boiling over by 1st of May.' My queens are from a well-known dealer, but I'll 'hope on.' The gooseberry and plum are in their glory, currants just coming on; apples will be a fortnight or three weeks in developing into a good show; hawthorn ditto; clover generally coming out in last two weeks of June. This year things are a little earlier. Now I can't see any chance of surplus before clover coming in. What do you think? I have frames of comb already drawn out, both shallow and $8\frac{1}{2}$ for each hive, frames filled with foundation, and a Lee's section crate ready, my desire being to prevent swarming, to gather a good surplus, and to have bees strong and numerous to gather it, and so I would ask—1. When brood department is on ten frames, must I put box of frames below or above? 2. What are my prospects with a decent season? 3. What means must I adopt to have these prospects realised? and, 4. May I come and ask again when necessary? — HONEYFLOW, *Poulton-le-Fylde.*

REPLY.—Three of your four stocks are in very good condition for the season; the fourth, on three frames and no eggs or brood save the 'comb with eggs inserted yesterday,' is probably queenless. They may raise a queen from the eggs inserted and they may not, most likely the latter, so this stock will not be likely to yield any profit. The others have ample time to become 'boiling over' before the middle of June, and with ready-built combs on hand there is every prospect of your securing a good amount of surplus honey. Your queries may be answered as follows:—1. Place boxes of comb *above* brood frames as soon as bees show signs of wanting room. 2. Your prospects of surplus are very fair indeed. 3. Act as directed above, and keep surplus chambers warm when on the hive 4. Certainly.

[47.] *Foul Brood.*—Will you kindly examine the pieces of comb sent and say if they are affected with foul brood or no?—if it is foul brood, what treatment would you advise? All my other stocks are healthy. The stock from which the comb was taken is rather weak. The queen lays more drone eggs than worker. Should you advise destroying the bees, how would you do it?—TOM, *Acton Bridge.*

REPLY.—The comb sent is badly affected with foul brood in its most virulent form. We advise no treatment except burning frames, combs, and bees (hive and all if not worth much). If the hive is a good one, and it is desired to save it for use again, scald it well, scrape away all propolis,

and give two coats of paint inside and out. Fill up every crevice and corner in painting.

[48.] *Removing Faulty Combs.*—1. I am in possession of an old bar-frame hive containing nine bars; it is a strong colony, but I wish to do away with the hive, and also the bars of comb, as they are ill-shapen and old. How should I proceed, and when would be the best time, before the honey-flow or after? 2. The queen of above hive, while at the moors last year, must have got crossed with a Carniolan drone, as there are young bees now in the hive with one yellow band across them. Will she continue to breed these hybrids, and will they be as quiet as the true Carniolan bee? 3. I also have another bar-frame hive, which, at the autumn of last year, contained eight bars. I only raised them up about two inches to see what honey they had sealed for the winter, and never disturbed it till last month, when I was disgusted to find only sufficient bees to cover two bars. I took all out except two, and I found that there was scarcely any brood nest, nearly all cells filled with sealed honey: queen apparently healthy. I removed the hive on to the stand of a strong colony, by which it got a lot of bees; examined it a fortnight later, but found no eggs or sealed brood. What is advisable to do in this case? Is it a case of an unfertile queen? As I am quite a novice at bee-keeping, you would greatly oblige by answering in *B. B. J.*—W. Pattinson, 14 *Stanley Street, Sunderland.*

Reply.—1. If the frames are standard size, or if you can by any means insert standard frames into the hive, you might remove the two outside ones at once, if they have no brood in them, and insert new ones fitted with full sheets of comb foundation. Later on examine the other combs, and, where practicable, give a new frame with foundation as before, until you get new combs built throughout. You can do this by the time supering commences in your district. The precautions to be observed are (*a*) Not to remove combs with more brood in them than you can cut out and fix up in a small box over the feed-hole, to which the bees have access, so as to cover and hatch out the brood; (*b*) not to put foundation between two distorted combs, or the mischief will be repeated. 2. Fertilised queens never mate a second time; so if yellow-banded bees are now being produced in the hive, it has been re-queened by the bees themselves. Hybrids are never so quiet to handle as the pure races. 3. The queen is worthless, and you did wrong to deprive the other stock of its working strength for such a purpose.

[49.] *Queen-cells raised on Eggs of Fertile Worker.*—Perhaps the following may be interesting to you or some of your readers. One of my hives swarmed, and the swarm, taken in a box, was left till afternoon; the parent hive was then moved away and the swarm hived on the old stand. All seemed well, but two days after on examination it was evident the queen had got lost. I gave them a queen-cell from a nucleus where I was raising queens with some young larvæ round it; on this they raised two or three queen-cells in addition. On examination to-day (about a week or more later) I find a fertile worker hard at work, several combs full of her eggs, two or three in every cell, and queen-cells raised and capped on her eggs; these cells are extraordinarily long and slender. I send you one as a specimen. The others I am going to leave to see what comes, but shall open one for curiosity. In the meantime they have rather neglected the bit of comb I gave them.—Malta, *Malta, April* 20, 1890.

Reply.—The above reveals a remarkable condition of things. We shall be glad to hear of 'what comes' before replying. Kindly forward report when the result is known.

[50.] *Suspected Foul Brood.*—Accept my best thanks for your kindness in writing to me direct in reply to my query *re* foul brood. Your card was a great relief to me, and came just in time, as I intended next day to destroy all the combs and start the bees afresh on foundation. I *had* been spreading brood in all my nine hives ever since April 1st, but the hives being very warm, none of the others have suffered. This stock, however, was rather weaker than most, and hence, I suppose, the mischief. 1. Would you kindly tell me what you would advise me to to do to the chilled brood—leave it or cut it out? 2. What is the best way to start a strong early swarm, so as to get as much section honey as possible? How many combs (ready built) should they be hived on, and when should the sections be put on?—F. W. Hotham, *Telham Grange, Battle.*

Reply.—1. Any combs so full of dead brood as the one sent should be destroyed entirely. Others, with only a small portion in them, may have the brood cut out. It is always objectionable to leave putrefying brood for the bees to remove and carry out. 2. The best way to get as much honey as possible is not to allow the bees to swarm at all. If you prefer swarms, let your strongest stocks swarm naturally, hive the bees on alternate combs and full sheets of foundation, and, if the weather be good and honey coming in fast, give a crate of sections four or five days after hiving. We trust you will bear in mind your experience of 'spreading brood.'

[51.] *Chilled Brood.*—Since I wrote to you last I have examined the same stock again. I find they are no better, but rather worse. I forward with this a piece of their brood. I am afraid, from the disagreeable smell and the dead grubs, it must be foul brood. I have three other very healthy stocks; must I disinfect them in any way? They are not being fed now, so I cannot give them salicylic acid in their syrup. I am afraid bees from these stocks have been going in and out of the diseased one. —B. L., *Cirencester.*

Reply.—The comb contains only chilled brood, and everything dead and decaying has an unpleasant odour. This is nothing akin to

foul brood, the smell of which is very peculiar. As recommended in our last (query 43), the stock should be destroyed.

[52.] 1. *Drone-breeding Queen.*—Could you inform me whether the enclosed queen is unfertile? The stock from which she was yesterday taken I examined on April 7th, and found two queen-cells, the one torn open, and the other from which a queen had very recently been hatched. I examined them again about a fortnight afterwards and found brood and eggs, but not sufficiently advanced to tell whether it was worker or drone. 2. But here comes to me the most peculiar part of the business. I examined them again yesterday and found plenty of drone brood (but no worker) and some had evidently hatched out, but not a single drone could I find. I thought it better not to play with this queen any longer, so removed her and gave them a frame of eggs and brood from another stock after opening some of the cells.—Jno. Whitworth, *Old Hill, Staffs, May 8th.*

Reply.—1. The queen sent is a virgin. 2. Drones hatched under such conditions sometimes 'move' into more congenial quarters in other hives, as the missing ones apparently have done.

[53.] 1. *Clipping Queens' Wings.*—Would you or any reader kindly give me a word or two on clipping queens' wings, as I am not at home through the day, and do not require swarms? also, will swarms return if the queen has wings clipped? 2. Do you prefer spacing frames less than 1½ in. from centre to centre to prevent drone-breeding?—M. D. Ayton, *Darlington.*

Reply.—If the queen's wings are clipped she is unable to fly, and consequently falls to the ground instead of joining the swarm in the air. The swarm missing the queen naturally returns to the hive, and the disabled queen is usually found on the ground, surrounded by a few bees. She may be returned to the hive, but only to *re*-issue again probably the next day. Why not try Mr. Bennett's 'Self-Hiver,' depicted on p. 128 (*B.J.*, March 13th)? 2. Spacing frames at 1¼ in. is one of the 'finer points' of bee-keeping, and has disadvantages which render it unsuitable for novices.

[54.] *Black and Shiny Bees.*—You are so kind in helping bee-keepers generally that I come for advice in a puzzle. I notice that one of my three hives has some of its bees black and shiny, and that others, though apparently young and strong, fall down helplessly, roll over as if too full or unable to discharge themselves, and die. The queen is very prolific, and the hive has plenty of brood. Pollen is being brought in freely, and I have a feeder on, allowing two-hole supply. What can be the matter, and what remedy do you suggest?—J. Digby Russell, *Kinnetty Rectory, Parsonstown.*

Reply.—The indications referred to make it probable the stock is suffering from the disease known as *Bacillus Gaytoni*, for which the best known remedy is *re*-queening. You might, however, allow a fortnight to elapse before doing this, to see what effect warm weather has in restoring the colony to health. Probably, also, you may have a surplus queen by that time from one of the other stocks to re-queen with if needed.

[55.] I began bee-keeping in the autumn of 1888 with a driven swarm, in a straw skep, which last year swarmed twice. The first swarm I lost, but got the second, which is now very strong, and I think will shortly be ready for supering. The parent stock is still in the skep, and I want your advice through the *Journal* as to the best mode and time of getting them into a bar-frame hive. I have heard of placing the skep on top of empty frames, but am not quite clear as to *modus operandi*. Your advice will greatly oblige.—Robin, *Strabane, Ireland.*

Reply.—The method of allowing the bees to transfer themselves from a skep into a frame hive is very simple, and nearly always a success if full sheets of foundation are given in every frame of the latter. Cut a quilt of common hemp carpet large enough to cover all the frames, and in this quilt a circular hole, 6 in. or 7 in. in diameter is made; on this the skep, when full of bees, is placed, and the roof covers all. When the bees have worked down into the frame hive, the skep is allowed to become the surplus honey department, and in the autumn, when full, is removed, the bees returned to the frame hive, and the honey appropriated. The other method is to allow the skep to swarm; and, twenty-one days afterwards, to drive the bees from skep, and establish them as a new colony in a frame hive in the usual way.

[56.] *Drones from Virgin Queen.*—1. Herewith I enclose a queen, which you might be good enough to examine and reply thereon in your next issue of *B.B.J.* She is, I fear, a drone-breeder; at least, I can find nothing else but drone brood, with a good many flying. I removed her to-day, and gave the queenless hive a frame of brood containing new-laid eggs from another hive, hoping that by doing this the bees may be able to raise another queen. 2. I would like to know whether the drones reared by the drone-breeding queen will be able to fertilise the young queen, supposing I have no other drones flying? I enclose a small piece of brood comb also.—James Houston, *Twynholm.*

Reply.—1. The queen is plainly an unfertilised one, there being no indication of age, and consequently worthless. Dead specimens are useless for most examinations, therefore a few worker-bees should always accompany queens, as the latter seldom live if sent by post alone. 2. Yes; drones bred from virgin queens, or even from fertile workers, are in every way perfect.

[57.] I have just bought a frame hive, with bees on nine frames. The hive had not been opened or honey taken from it for a year. On opening it last week to put the bees into a

clean hive I found it crowded with bees, the combs in good condition, with brood on every comb, and a small quantity of new honey; but four of the frames were so closely built together down the whole depth that I could not separate without destroying brood or dragging comb out of the next frame (one of the combs did get a little torn out of its frame in moving). I lifted these frames all together into the clean hive, but I would be glad to know—1. If I had better leave them now as they are, or cut them apart at once, and wire the frames where the comb has torn or dropped from the frames? This hive is to be used with sections above the frames for comb honey, not for extracted. I put a clean frame, with foundation, in the middle of the other frames when I moved them, and as they are very strong, and there is a good deal of fruit blossom now out—2. Do you consider the sections might now be put on? Drones have been flying for the last ten days. —M. BLAND, *Bideford, North Devon.*

REPLY.—1. Do not disturb the bees at all at present. After the season's work is over you may regulate the frames before feeding up for winter. 2. Yes, at once, by all means.

[58.] *Honey Labels.*—Can you, or any of the readers of the *B.B.J.*, tell me where I can get a suitable label for the 'Breffitt' screw-capped barrel (1-lb. size) honey jar ('Pure Honey,' 'Pure British Honey,' or 'Pure Welsh Honey')? —CYMRO, *Builth, Wells.*

REPLY.—Many dealers include samples of honey labels in their lists. Consult our advertising pages, and write to them for catalogue.

[59.] *Changing Hives Annually.*—1. Do dandelion flowers yield honey or pollen? 2. I have wintered on seven frames. Five of them had brood on May 3rd. Can that be called a strong stock? 3. Ought I to change the bees into a new hive every year? and if so, will the old hive want washing and painting?—B. C., *Bradford.*

REPLY.—1. Chiefly pollen. 2. Fairly strong. Bear in mind that queens are disinclined to deposit eggs on the combs next the hive-sides. Had these bees more than seven frames when you examined, probably more brood would have been found. 3. Not necessarily. Painting hives every year is very advisable, but they do not need washing.

Echoes from the Hives.

South Norwood, May 3rd.—Grand weather; bees doing well. I examined hives to-day, and found all in excellent condition; honey from fruit blossom coming in fast. My strongest stock are hybrids, and are preparing for swarming, as I cut queen-cells out with eggs in to-day, and found nothing but frames of solid brood. I have had to give them more room, as they had begun to build on the division-board. Are they not exceptionally early? Not much drone brood yet.—G. S.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

F. M. (Chichester).—*Mildewed Pollen.*—The comb sent contains only mildewed pollen and sealed honey; no foul brood. The stock has evidently been queenless for some time, and has dwindled away.

G. STREET (Dartford).—*Samples of Sugar.*—If you will kindly forward your name and full address we will explain how the matter has been overlooked.

W. H. LEY (Stamford).—*Drone-breeding Queens.*—Quite a number of cases of drone-breeding queens have been recently reported, and not a few of them are, like your own, quite prolific. In some cases no doubt the young queens have been raised during the early months of the present year (before drones were out) through reigning queens being 'balled,' or else deposed by the bees themselves; and when this happens in a good strong stock, the activity of the bees and the present fine bee-weather will develop the fecundity of even virgin queens in a very marked degree. In this way only can we account for the number of eggs found.

H. REYNARD.—*Recipe for Carbolised Cloth.*—1½ oz. of Calvert's No. 5 carbolic acid, 1½ oz. glycerine, 1 quart of warm water. The acid and glycerine to be well mixed, and the bottle shaken before using. The cloth should be steeped in the solution, rung out pretty dry, and spread over the top of frames as soon as the quilt is removed.

F. TIMMS.—We know of no such publication.

COUNTRY LAD.—The comb is affected with foul brood. You should send name and address (for reference only).

F. HOTHAM.—The brood in comb sent is 'chilled,' not foul. We should like to know if you have been 'spreading brood,' or doing anything tending to cause the mischief referred to. It is much to be regretted when large patches of brood perish in this way, often from want of care. An occasional 'Echo' from you will be always welcome.

WALES.—1. Queens are never fertilised in the hive, but on the wing always. The natural tendency also is not to 'breed in and in;' hence, queens and drones seek mates from other hives, by flying swiftly away for a considerable distance from their starting-point. Any queens you rear *may* be mated with drones from your own apiary, and they may be met by drones from a distance; we cannot regulate these things. 2. Young queens are

not so prolific the first year as in the second and third. 3. Black queens and Carniolan drones make a very good cross. 4. A running brook thirty yards away renders water-troughs for bees unnecessary.

IBID.—The plant sent is a common weed, popularly known as red dead nettle (*Lamium purpureum*). When it grows in quantity it is much frequented by bees, and is a good honey-plant, like the rest of the family *Labiatæ*, none of which are poisonous. Balm, basil, sage, &c., are all nearly related to this plant.

*** *A number of communications are unavoidably held over till next month.*

NOTICE.—We would ask our correspondents to take notice of the removal of our office, and to request them in future to address all communications relating to the literary department, &c., to 'The Editor of the "BRITISH BEE JOURNAL," 17 *King William Street, Strand, London, W.C.*'

THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

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Editorial, Notices, &c.

FOUL BROOD.

It may appear an untimely season in which to again take up the question of foul brood, and give special prominence to an unsavoury subject at a time when bee-keepers would fain delude themselves into the belief that there was no cloud to obscure the sunshine of cheerfulness inspired by supers filling with fragrant and luscious honey. But, to blindly ignore what is going on around us, and shut our eyes to the danger and folly of 'keeping things dark,' is so obviously absurd, that it can only be likened to the ostrich hiding its head in the sand while its captors are approaching. We look on this dire disease as the bane of bee-keeping; indeed, it may be regarded as almost the only drawback to a pursuit otherwise full of pleasures, and if we can make readers understand its terribly infectious character and the ease with which it is transmitted from place to place, enabling them to realise for themselves the deadly nature of the enemy we are contending with, neither time nor place will be considered unseasonable for dealing with it and its ravages.

Questions of this kind, important though they may be to the bee-keeper, and affecting seriously, as they do, the interests of thousands of people, are most difficult to arouse general public interest upon; and more difficult still is it to hope for the notice of our legislators when only the well-being of a minor industry like ours is concerned. But the time is assuredly coming when something will be done by way of including foul brood among bees in the list of infectious diseases which are dealt with by law.

In Germany bee-keeping is protected by the legislature, and bee-keepers possess special civil rights which protect them from injury in the direction to which we refer. In parts of Australia, too, action has been taken in view of making foul brood a subject for State interference; and only lately the Legislative Assembly of the Province of Ontario has passed an Act for the suppression of foul brood, the full text of which we print on another page, and commend it to the careful reading of bee-keepers in this country.

The question was also brought before the Committee of the B. B. K. A. at the quarterly meeting on Tuesday last in the form of 'calling attention to the fact that foul brood in one of the districts of the Kent Bee-keepers' Association has assumed so serious an aspect as to call for some special measures to cope with it.'

Not one whit too soon is this question of taking action by County Associations brought forward, and we trust that some means may be devised of 'coping with it' successfully; but, for the present at least, it can only be by seeking out, buying up, and destroying all stocks belonging to persons who themselves refuse to destroy them without compensation, and by organizing a regular system of supervision over such colonies as their owners will allow to be 'treated.'

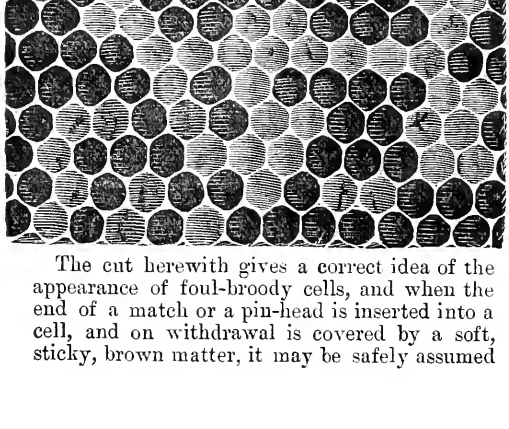
Meanwhile we have our own proposition to make, not to the Committee of the 'British,' but to a very considerable number of readers, who seem to have but the faintest notion of the nature and of the terribly infectious character of the disease. It would surprise many to know how numerous are the 'samples' of comb received here, with the query, 'Is this foul brood?' And it has astonished us very much indeed to see how little knowledge of the nature of the pest is apparent in the way correspondents treat the subject. We desire to enlighten them on the point in so far as it affects them and ourselves. Foul brood is so easily spread, and so readily transmitted from one colony of bees to another, that no precaution can be too great if we are to avoid spreading the evil, as we can in a hundred ways, by carelessness, wilful or otherwise.

Judging our correspondents by the scant precaution so many take in dealing with *us* when sending 'samples,' we shall have but small hope of success in any attempts they may make in battling with the disease unless we can convey to them a better idea of the nature of the subject they are dealing with. For instance, pieces of comb are sent here reeking with foul brood: usually the note accompanying the 'sample' is folded and laid in the box or parcel (not seldom on the comb itself), and when received is often stained with foul-broody matter in transit. Very rarely are samples and letters sent separately (as they should be always), and only a few days ago a frame of foul-broody comb was received which had travelled between two and three hundred miles with no protection or covering other than a couple of thin boards tied one on each side of it! That comb travelled spreading bacterial germs as it went, and liable of course to do mischief somewhere; and

it shows how culpably careless persons may be without the smallest intention of doing harm.

Readers should also kindly bear in mind the fact that we, too, keep bees, and are keenly alive to the danger of carrying infection to our stocks through the quantity of foul-broody samples reaching us for inspection. We do not desire to lessen the amount of aid we can give to those in trouble with their bees, but we do ask for a little consideration when packing up foul-broody samples for sending here. Only by the most careful precaution can we hope to escape. It is scarcely necessary to acquit each and every one of any wilful intention to do harm, but we may endeavour to inculcate a lesson by giving a few details of the precautions we are compelled to take in securing immunity from risk. First, then, all parcels are laid aside in quarantine till all ordinary correspondence is dealt with. Secondly, when opening these parcels every particle of covering about and around them is placed in a proper receptacle, boxes are then opened, combs examined and thrown with the other things to be at once burnt. Stained letters then require washing, and then our own hands, &c., are cleansed by washing with strong (medical) carbolic soap. Sometimes we have to copy long letters, and burn the originals; all this involves not a little trouble, which may in a great measure be saved by care on the part of correspondents.

Needless anxiety and sometimes actual loss might also be averted if a little more study and thought were given to the known characteristics of foul brood. One correspondent sent a sample of comb a few days ago which had no appearance of sunken cells, no brown, fetid matter in them, stringy and tenacious when drawn out, as foul brood always is; in fact, nothing beyond normal healthy brood, 'chilled,' and dead of course, through 'spreading the brood;' yet so great was the writer's dread of foul brood that he destroyed the stock and its belongings without waiting for our reply.



The cut herewith gives a correct idea of the appearance of foul-broody cells, and when the end of a match or a pin-head is inserted into a cell, and on withdrawal is covered by a soft, sticky, brown matter, it may be safely assumed that the disease is there. We hope to soon see the time when fewer persons will desire to 'keep quiet' when an outbreak occurs, and shall certainly do what we can to make the mischief—possibly caused through carelessness or neglect—known to all. A good sign is visible already in one dealer publishing in our columns this week the fact of his apiary having been attacked. He has shown an example of courage in making the fact public which will, we hope, eventually tend to do him good rather than harm, and it is to be hoped his example will be followed by others who may be as unfortunate as himself.

BEE AND HONEY SHOW AT ROCHESTER.

Readers will please note that entries for this important Show close on Saturday, the 24th inst. Schedules and entry forms may be had of Mr. Huckle, Kings Langley, Herts.

USEFUL HINTS.

Weather.—A week of good bee-weather has followed the uncompleted 'Hints' in our last. Swarms are now reported in many places, and sections, supers, &c., are said to be filling nicely. We must caution our readers against more disturbance than necessary in giving surplus chambers; for it not seldom happens, especially with foreign bees and their hybrids, that an exciting upset, when putting on section crates, &c., causes the bees to swarm on that or the following day. Quiet and cautious handling will minimise the chances of this.

Preventing Swarming.—On this important question it is interesting to read the replies given to the 'selected query' from the *American Bee Journal*, printed in our columns last week. The query reads: '*Which do you find the best plan to prevent swarming—giving abundant room by tiering one set of combs above the other, or giving the necessary room below, all on one level? Or what other preventative do you use?*' Replies are given by twenty American authorities, all known bee-keepers of experience, and they seem very much in agreement with what is known here on the subject. It might reasonably have been supposed that the excessive heat in summer-time in the States would have rendered it necessary to give special attention to shade and ventilation; but only one mention is made of 'ventilation,' and none at all of 'shading' the hives. The most important point—and the one emphasised by ten of the twenty authorities—is giving ample surplus room above the brood nest. Of the other ten no two quite agree; two recommend the frequent use of the extractor as a preventative, but the information furnished may be taken as practically confirming the views generally adopted here, that surplus room above brood chamber is the best means of restraining swarming. With all respect to 'American opinion,' we believe that the additional precaution of plenty of ventilation below, shading hives in hot weather, and keeping only young

queens—precautions adopted by most advanced British bee-keepers—are valuable points not to overlooked or disregarded, but that, with these additions, everything is done which can be done to prevent swarming. Few among the special 'plans' and 'methods' advocated seem to meet with lasting favour; but we may, in passing, observe that a 'new idea' has been imparted to us (in confidence) which seems to have 'something in it.' When it has been subjected to further trial it will be made public.

Surplus Chambers—Over or Under Each Other?—In like manner we have had the views of some of our known British bee-keepers on this vexed question, and it may be again said that 'doctors differ,' though the majority favour the plan of placing second and third supers below those already on. Our own practice—hitherto guided mainly by expediency and the saving of time—goes with the minority, *i.e.*, setting additional chambers *over* those already on, and we have an idea that most of those who argue the other way do so from theory rather than practice. Let us hear of a dozen stocks of equal strength in one apiary, half of them worked on each method, and if the results, fairly and impartially judged, show any decided advantage in tiering up from below well and good, but if not we shall claim preference for that plan which is least troublesome to the bee-keeper and causes least upset to the bees.

Sections, Probable Scarcity.—There are indications of a probable scarcity of two-inch-wide sections this season, which readers who have delayed purchasing will do well to take note of. We already hear of dealers raising prices and refusing altogether to 'wholesale' any, believing that they can dispose of all they have on retail terms. The destruction by fire of Messrs. Lewis & Co.'s place will have stopped one main source of supply, but beyond this it is the custom of the trade in America to only provide for filling orders sent in early in the year, so that the main supply for the whole year is made during the 'slack time' in winter and spring. Now, dealers here, rather unwisely remembering the bad season for trade last year, have only stocked short supplies, with the probable result of causing annoyance to customers and trouble to themselves. The bee-keeper, has, however, this consolation—he can fall back on 'working for extracted honey' if sections cannot be got. Besides, there are a lot of the narrower sections ($1\frac{3}{4}$ and $1\frac{1}{2}$), which have been looked upon with some disfavour since their much-belauded first appearance a year or two ago. These are still available.

Associations.

ESSEX BEE-KEEPERS' ASSOCIATION.

The above Association hold their County Show for 1890 in connexion with the Essex Agricultural Society's Show at Chelmsford, on Wednesday and Thursday, June 11th and 12th. This department of the show is under the special patronage of Lady Brooke, who gives 5*l.* towards the Cottagers' Prizes.

The prize list is one of the largest (if not *the* largest) of the year, and should draw a full entry. For collections of appliances, the same amount is offered as at the coming 'Royal' Show, only the sum is divided into three prizes instead of two, as at the 'Royal.' All classes, except those for cottagers, are open to the United Kingdom, and the total amount offered in these amounts to no less than 28*l.*, which, together with about 7*l.* in the Cottagers' Classes, brings up the total to 34*l.* 14*s.*, besides several silver and bronze medals and certificates. This is exclusive of a novel prize offered by the Hon. Secretary to the cottager member of the Essex B. K. A. who is owner of the apiary 'which is worst kept and exhibits least knowledge of the principles of profitable bee-keeping,'—prize, large flat-topped skep, fitted with section-rack and roof. This is, we presume, given not as a reward for bad management, but to teach the winner 'the error of his ways.'

In addition to the patronage of Lady Brooke, who takes a special interest in the bee department, the show will, it is believed, be visited by H. R. H. the Prince of Wales, and we hope fine weather and a good entry will reward the enterprise shown by the Executive of the Association in issuing so attractive a schedule of prizes as the one before us.

HAMPSHIRE BEE-KEEPERS' ASSOCIATION.

We are glad to see that this Association, after suffering from what may be called a period of inanition, shows hopeful signs of recovery to its former activity and usefulness. The Hon. Secretaryship has been undertaken by the Rev. W. E. Medlicott, of Swanmore Vicarage, Bishops Waltham, and it has been arranged to hold an exhibition of bees, honey, and appliances in connexion with the Royal Counties Agricultural Show at Winchester, on July 8th to 11th next. With the present prospects of a good season before us, we hope that a successful show at Winchester will inaugurate a successful future for the Association.

ULSTER BEE-KEEPERS' ASSOCIATION.

The annual meeting of this Association was held at 41 Waring Street, Belfast, on Friday, the 9th of May. Among those present were Revs. H. W. Lett and J. Andrews; J. Hanson, J.P.; Messrs. E. Smith, Thomas M'Henry (Derriaghy), S. Rafausse, A. W. Child, and Paul M'Henry. The Rev. W. H. Lett, vice-president, having been called to the chair, the report of the Committee for the past season was read by the Secretary, the same being adopted, ordered to be printed, and circulated amongst the members. We extract the following:—'The past season, though short from the bee-keepers' point of view, was a very successful one. The Association did not hold a show, but

instead subsidised the shows of Banbridge, Lisburn, and Strabane. This proved most satisfactory, the honey staged at these shows being far in excess of anything produced before, both in quantity and quality. Honey was also exhibited at the shows of Armagh, Larne, Newtownards, and Castlerock, indicating the spread of apiculture under the humane method, and reflecting great credit on the labour of this Association—the first established in Ireland.'

The Secretary announced the award of the judges who had kindly consented to examine the MSS. of competitors for the prize offered by the Association in 1889 for the best essay on Bee-keeping suited for reading before an audience, and setting forth the management of bees on the bar-frame system in a manner most intelligible to those unacquainted with that system. The Rev. W. Lett, M.A., carried off the first prize, Mr. A. W. Child coming second. This lecture will be published by the Association, and circulated throughout the province of Ulster.

A depôt has been established in Belfast for the sale of members' honey, the agency being entrusted to Messrs. Alex. Dickson & Sons, of Royal Avenue, and it promises to be most successful, the sales showing a steady increase. The financial statement was also satisfactory, showing a large balance in hand. The report concluded by drawing attention to the return of the Registrar-General regarding bee-keeping, by which it appeared that our province was well to the front as regards both honey produced and number of hives kept. The Secretary (Mr. Paul M'Henry) was persuaded to continue in office for another season, and accorded a hearty vote of thanks for his invaluable services. The hive, balloted for as usual, was won by Mr. C. H. Brett.

During the conversational portion of the meeting, expression was given to the urgent need of a properly qualified expert in the neighbourhood of Belfast, but the members present seemed to be of opinion that just now there would not be sufficient engagements procurable to require a person who would have no other avocation.

WILTS BEE-KEEPERS ASSOCIATION.

Owing to various causes it was impossible to hold the general meeting until May 7th, when the members were invited to meet at Marlborough. The attendance, always small, was this year better than usual. The balance-sheet showed a large amount of arrears—greatly owing to the bad season of 1888—but if these are paid up the Association will be in a fairly satisfactory state.

There was some discussion as to the propriety of continuing to pay the expenses of the representative on the Committee of the B. K. K. A.

It was decided that every effort should be made to collect the arrears, and raise a sufficient fund to enable the Association to hold a county show this year.

No alteration was made in the staff of the Association, and Rev. W. E. Burkitt was again appointed to represent Wilts on the B. K. K. A. Committee.

It was decided that 'expert tours' should be carried out as far as funds will allow; but in any case the expert will be prepared to visit any locality if neighbouring members unite to defray railway expenses.

AN ACT FOR THE SUPPRESSION OF FOUL BROOD AMONG BEES.

Her Majesty, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:—

1. (1) The Ontario Bee-keepers' Association shall, at each annual meeting, or the Executive Committee of the said Association shall, if in the interval between two annual meetings the occasion should arise, appoint an inspector of apiaries and a sub-inspector for the Province of Ontario, and the said inspector and sub-inspector shall be elected by the vote of the majority of the members of said Association present at the annual meeting, or the vote of the majority of the members of said Executive Committee, as the case may be.

(2) The election and appointment of the said inspector and sub-inspector, or their removal from office as hereinafter mentioned, shall be subject to the approval of the Lieutenant-Governor in Council.

(3) The said sub-inspector may, when so directed, as hereinafter provided, perform all the duties and exercise all the powers in this Act directed to be performed or exercised by the inspector, and the provisions of this Act relating to the inspector shall be deemed to apply to and include the said sub-inspector.

2. The said inspector and sub-inspector shall hold office for one year from the date of the annual meeting at which they were appointed, or if they shall have been appointed by said Executive Committee, then until the next annual meeting after such appointment, and shall be eligible for re-election; but the said inspector or sub-inspector may at any time, subject to the approval of the Lieutenant-Governor in Council, be removed from office by said Executive Committee for neglect of duty or other sufficient cause, and in case of such removal the said Executive Committee shall without delay appoint a successor.

3. The said inspector shall, whenever so directed by the President of the Ontario Bee-keepers' Association, visit without unnecessary delay any locality in the Province of Ontario, and there examine any apiary or apiaries to which the said President may direct him, and ascertain whether or not the disease known as 'foul brood' exists in such apiary or apiaries, and whenever the said inspector shall be satisfied of the existence of foul brood in its virulent or malignant type it shall be the duty of the inspector to order all colonies so affected, to-

gether with the hives occupied by them, and the contents of such hives, and tainted appurtenances to be immediately destroyed by fire under the personal direction and superintendence of the said inspector; and after inspecting infected hives or fixtures, or handling diseased bees, the inspector shall, before leaving the premises or proceeding to any other apiary, thoroughly disinfect his own person and clothing, and shall see that any assistant or assistants with him have also thoroughly disinfected their persons and clothing; provided, that where the inspector, who shall be the sole judge thereof, shall be satisfied that the disease exists, but only in milder types and in its incipient stages, and is being or may be treated successfully, and the inspector has reason to believe that it may be entirely cured, then the inspector may, in his discretion, omit to destroy, or order the destruction of the colonies and hives in which the disease exists.

4. The inspector shall have full power, in his discretion, to order any owner or possessor of bees dwelling in box hives (being mere boxes without frames) to transfer such bees to moveable frame hives within a specified time, and in default of such transfer, the inspector may destroy, or order the destruction of, such box hives and the bees dwelling therein.

5. Should the owner or possessor of diseased colonies of bees or any infected appliances for bee-keeping, knowingly sell, or barter, or give away such diseased colonies or infected appliances, he shall, on conviction before any justice of the peace, be liable to a fine of not less than $50 or more than $100, or to imprisonment for any term not exceeding two months.

6. Should any person whose bees have been destroyed or treated for foul brood, sell, or offer for sale any bees, hives, or appurtenances of any kind, after such destruction or treatment, and before being authorised by the inspector so to do, or should he expose in his bee-yard, or elsewhere, any infected comb, honey, wax, or other infected thing, or conceal the fact that said disease exists among his bees, he shall, on conviction before a justice of the peace, be liable to a fine of not less than $20 and not more than $50, or to imprisonment for a term not exceeding two months, and not less than one month.

[The remaining clauses will appear next week.—Ed.]

Never mind the crowd, lad,
Nor fancy your life won't tell;
The work is done for all that
To him who doeth it well.

Fancy the world a hill, lad,
Look where the millions stop;
You'll find the crowd at the base, lad,
But there's always room at the top.

Keep your eye on the goal, lad,
Never despair or drop;
Be sure that your path leads upward—
There's always room at the top.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," 17 King William Street, Strand, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to Mr. J. Huckle, Kings Langley, Herts (see 1st page of Advertisements.)

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

IN THE HUT.

'Here I and sorrow sit;
Here is my throne.'
Divine Williams.

[184.] And if one sits long the inherent dampness chills one through, the place leaks at the roof even yet, and the cosy summer cogitating-den, with its cushioned seats and kamptulicon floor, is at this time only visited for the purpose of mopping up the percolated rain collected in pools. I cannot re-cover or re-tar the roof because of the glass hive of bees in it (the hut).

Sorrow No. 2 is a good stock of bees at spring opening, headed by a fine cross-bred queen, which goes on from bad to worse in its course of spring dwindling. Plenty of eggs there were, of bees and of stores, yet on it goes to perdition. Now here I make a present of my idea of the true cause of this, up to now, incurable fatality: The queen stops, or is stopped, egg-laying so early in autumn that the bees left to survive the winter are somewhat aged, and when spring comes round they are absolutely old and effete, the glands for the production of the *first* brood-food are hard, callous, and atrophied, so that the egg perishes for want of the necessary secretion; the number of those who do arrive at maturity does not keep pace with the death rate, and—we know the rest. Moral: In storing surplus give plenty of room above, without cramming honey down into brood combs, which we, coming from heather, often find from top to bottom of combs. The queen is thus too soon forced to stop laying. Where heather is not get-at-able extracting is done, and feeding up syrup proceeded with. Do not let us feed too much and too rapidly if there be plenty of time to get sealed. In other words, go in for young bees, which will, by their numbers, conserve the heat of the hive and economise the stores.

I see the question of 'Do Bees Hear?' is being discussed in the *Record*, and as its columns are devoted more to the practical than to the scientific aspect of bee-keeping, I should like some of your readers to take the question up, so that those who do not subscribe to both papers may give and receive views of the question.

Bees do so many stupid things that sometimes I am inclined to deny them the possession of the faculty of hearing, yet when we know them to have organs on the antennæ mechanically suitable for hearing, and the corresponding gift —a voice—I am compelled to conclude they do hear. It is a big argument, more suitable for deep serious study than somewhat frivolous hut-talk.

I wish some one would make a collection of bee-tales and publish it. It would 'go'—especially choice would be those tales (not tails) of stings and stingers. One of the most agreeable times I ever had was as a listener to short pithy bits from Mr. C. N. Abbott (both with smokers lit). Perhaps you may some day give the matured bee-keeper a column, in which to retail choice and witty tales for our edification.

We shall find some most interesting information about the bees and honey of darkest Africa in Mr. Stanley's new book. I read recently a very useful article on bee-keeping (in the *Co-operative News*) by a lady bee-keeper; if you will permit the suggestion, such articles of British production would reproduce in the *B.B.J.* quite as effectively as transatlantic clippings. Our lady friends might favour us with a few more contributions, for they are a great power in bee-keeping, at least in the opinion of—X-TRACTOR.

[We will probably adopt the suggestion of our correspondent.—ED.]

PREVENTION OF SWARMING.

[185.] I was very fortunate in this last year, though my stocks were very strong and required constant watching. I supered first of all, then placed a frame with half sheet of foundation in front of the hive, which I removed as soon as worked out, added more frames at the back with whole sheets, making the total up to seventeen or eighteen, and *even then* they threatened to swarm, till (in all but two hives which did not admit of it) I let down the floor-boards about two inches in front—my floor boards are a novelty, hinged at the back. Not one treated in this way swarmed, and I only had three from seven hives, each of which gave me about 45 lbs. of honey (though none came out till June 15th), having started them on six frames filled with comb worked out the previous autumn, which of course gave them a good start. Had I not done this the honey season *here* would have been over before their combs were built.—W. E. BURKITT.

[We know of no better aid in the prevention of swarming than giving plenty of air below. If floor-boards are not suited for letting down hives should be raised up from their floors, so as to allow a free current of air beneath, and give free passage for the bees all round. We cannot quite approve of your plan of giving 'seventeen or eighteen' standard combs in the body of any hive, even to prevent swarming, if the queen has access to more than ten or twelve of the number.—ED.]

PARASITES ON BEES IN SOUTH AFRICA.

[186.] I am sending by same mail a small bottle containing some parasites which are taken from South African bees; they are not very numerous in a hive. When manipulating we find perhaps a dozen bees on a comb infected, and perhaps the queen. There is generally one of the lice (or whatever they are) on the lower part of the back of head, and sometimes under the thorax, where they remain quiet. Will you please answer in the *Bee Journal* as soon as convenient, as several South African bee-keepers are awaiting the result with anxiety. Our questions resolve themselves into the following:—1. What is the name of the parasite? 2. Are European bees infected? 3. Are they harmless? 4. How best to get rid of them? Anything interesting about them would be thankfully received.—A. H. L., *South Africa, April 23rd*, 1890.

[These appear to be identical with the European bee-louse, *Braula cæca*, (Nitsch), which is said specially to infest Italian bees, upon which it is imported to other countries. As it lives upon the body of its 'host,' and draws its nutriment therefrom much in the same manner as its relatives, the fleas and ticks, do, it can scarcely fail to be more or less harmful to those bees which it infests, whilst it is sufficiently hardy to be unharmed by any treatment not actually fatal to the bees themselves. Dr. Edward Assmuss (whose work on the parasites of the honey-bee contains a description and figure of the Italian species) recommends rubbing these parasites off the bodies of the bees with a feather as they pass in and out of the hive; but he apparently refers to cases in which there were as many as fifty to one hundred infesting a single bee. The presence of one or two specimens would, however, be difficult to detect without close inspection, from the parts they commonly affect and their similarity in colour to that of the body of the bee. The *American Naturalist* for June, 1868, contains an article on the subject of bee-parasites, in which *Braula cæca* is described and figured. It is there stated that it multiplies slowly, and that the young are not produced until about to assume the pupa state. The writer of that article, Dr. A. S. Packard, who quotes freely from the work of Dr. Assmuss, calls the creature 'a singular, wingless, spider-like fly;' but inasmuch as it has six legs only, a segmented body, and a head without eyes, its relationship to the arachnida is as remote as it obviously is from most flies with which we are acquainted.—ED.]

INTRODUCING QUEENS TO COLONIES LONG QUEENLESS.

[187.] Judging from the many inquiries I receive on the above subject, I think it might benefit a large number of bee-keepers if you were to print my usual answer to the question, 'How would you introduce a fertile queen to a colony long queenless?' which reads as follows: 'I never experience any difficulty in doing so. Generally a queenless stock will accept a fertile queen very readily. I always follow the "fasting" plan. Keep the queen alone and without

food thirty minutes in a warm place. Then take out one of the combs, and let the queen run amongst the bees. They will generally commence feeding her at once; but should they not do so (which is very unlikely), give them a frame of brood, put feeder on, and let the queen run under the quilt at night, having previously kept her *alone and without food* as above.'—C. Brereton, *The Vicarage, Billinghurst, Sussex.*

BEE MANAGEMENT IN AMERICA.

[188.] *A Mild Winter in America.*—The past winter was unusually mild in this latitude, and bees came through in fine condition. There were a few hives found tenantless, owing to loss of queens, and one had been accidentally smothered. We winter half our bees upon their summer stands, and the remainder in the cellar. Preparatory to moving them I slip in a piece of rag at the entrance, to prevent the bees escaping and terrifying the workmen. I gave orders to have the rags removed the next morning when the bees had quieted down, but through carelessness this one was omitted. It was a large colony, with plenty of honey, and covered with cotton cloth; this shows plainly that it is best for entrances to be left open. The dead bees upon the cellar floor have not died because they could not find their way back to their hive, but left it on account of approaching dissolution: 'turned their faces to the wall' as it were. It is better that they should rather than remain and die in the hive.

Cleaning Hives.—The first of May being warm and pleasant, I embraced the opportunity of working in the apiary, preparing for the busy season. I use the eight-frame Langstroth hive, and the frames are spaced, resting in notches cut in a wooden support. The bees glue them fast, which is the only objection. I loosened the frames of the tenantless hives, and scraped off all propolis from the top with a wide chisel. I took out one at a time, looked it over carefully, cutting off all old queen-cells, as they are never used but once, and then placed it in a new hive. When all were removed, I scraped off all patches of comb from the hives, and saved the wax. I then had the boy-of-all-work scrub the hives with hot suds and rinse thoroughly, and set them out in the sun to dry.

Melting up the Refuse.—This refuse, which looked as if fit for nothing but burning, I put in a metal sieve placed over a pan, poured boiling water over it, and set it in the cooking-stove oven to melt. When the wax had all run down into the water, the pan containing it was set away to cool, and the sieve filled again and placed over another pan, proceeding as before.

Remelting Wax.—During the working season all bits of comb and scrapings from sections are melted as before described, to prevent the ravages of the moth, and the cakes of wax removed from the water and stored away. In the spring, when wax brings the highest price, I remelt and market it, proceeding in this way:—I place it in a pan over a kettle of boiling water, and cover it with another pan. I melt off the top and bottom of a tin fruit can to hold up a coffee strainer. I then set this cylinder, holding the strainer, into a little pan or basin, and dip the melted wax with a little cup into it. When I am waiting for wax to melt, I put the strainer into the oven to keep hot, and one day melted the perforated bottom out; since then I tie on a piece of cheese-cloth, which is preferable, for as soon as dregs accumulate, I put on a fresh one, and my wax is better strained than formerly. The cakes are all of the same size, and bring the highest market price.

Frost.—The spring here has been very warm, with many warm, sunny days, and all nature was clad in holiday attire. Fruit bloom was very abundant, and bees revelled in sweetness. May 5th the weather changed, and ice formed in the bees' drinking vessels as thick as window glass. Now nature mourns. The young grape shoots, full of buds, are turning brown; the little peaches had not shed the outer covering of the blossom, which may have protected them in a measure. This freeze will no doubt injure bees very much, chilling brood; they have been driving out the drones since. This cold weather has extended over a large extent of country, and many apiaries have their supplies cut off.—(Mrs.) L. Harrison, 821, *Harlburt Street, Peoria, Ill.*

HIVING SWARMS.

[189.] In your advice on hiving swarms (page 231) in 'Useful Hints,' I see nothing about what to do if the swarm has settled in an *awkward* place. Having had a good deal of experience—and amusement, too—in such cases, some may be glad to know my plan. If the swarm is on a wall with fruit-trees or ivy, or on the stem or thick limb of a tree, fix the skep securely in any convenient way just above the bees, then gently tickle the mass with a feather dipped in the diluted carbolic, or if that is not at hand (as it always ought to be) give gentle puffs of smoke below the cluster, and all will soon enter the skep. If reluctant, I stuff in below them a carbolised cloth.

I pursue much the same plan if they are in the middle of a quickset hedge. If a neatly cut one, I hang the skep from a couple of clothes-props till the bees begin to run in, and let it rest on the top of the hedge, and then gradually draw it up till quite clear. I do the same if the swarm has pitched in the middle of a gooseberry or currant bush, and never have any trouble.—W. E. Burkitt, *Hon. Secretary and Expert, Wilts B. K. A.*

[We had not overlooked the fact that contingencies of all kinds arise in bee-work; unfortunately, however, space forbids us going fully into what 'may happen,' and we think it best to meet cases of difficulty as they come before us in our query column, leaving readers to gather up all the information they can from our replies and 'store it' for future use. We are none the less obliged to our esteemed correspondent for giving us his experience.—'U. H.']

FOUL BROOD IN AN APIARY.

[190.] Will you kindly allow me the use of your columns to report that, as foul brood has broken out in my apiary, no more bees or queens can be sent out to any one? I, however, have made arrangements with bee-keepers whose bees are perfectly free from the pest, and will be able to execute orders at early dates. I will be glad if any one who has had bees or queens from me this spring will write and report results.

As soon as my apiary is free from the disease —as I trust it soon will be—I will again take advantage of your kindness, and let readers know. —CHAS. HOWES, *The Apiary, Cottingham, Hull.*

[We readily insert the above, and commend Mr. Howes' courage in making a public statement regarding the condition of his apiary. It is to be hoped that if other dealers are similarly unfortunate they will adopt the same course; by doing so they will gain the confidence of customers, and do themselves far more good than harm.—ED.]

QUEEN CEASING TO LAY—CURIOUS CASE.

[191.] I send you a queen. She belonged to a condemned skep which I drove last autumn. She only had a fair amount of brood this spring, and about a fortnight ago I united her stock to another and gave her to a queenless lot. They took her very well (I only lifted up the corner of the quilt and put her in), but she has not laid an egg since. I should be much obliged if you would dissect her and let me know in the *B. B. J.* whether I have damaged her in handling. I do not think I have, as I took her well by the head and shoulders, but as I have not had a great deal of practice in handling queens I should like to be certain.—O., *Bury St. Edmunds.*

[This queen came to hand in good condition, and though dead and not preserved in fluid, was sufficiently fresh for dissection. It showed no indications of having received any injury. On opening the abdomen the ovaries were found to be in the flaccid and atrophied condition observed in specimens which have been insufficiently nourished, either from starvation or unsuitable food. The oviducts presented no unusual appearance, the spermatheca was filled with spermatozoa quite normal also as to form and size. The tracheal system also seemed perfectly healthy. On removing the alimentary canal, however, we observed that near the lower end of the large intestine there was a slight distention, contrasting by its brown colour with the white portions above and below. This dilation was found to be due to the presence of a substance too hard to yield to the pressure of a dissecting needle, and on opening the intestine a small calculus (?) was discovered about one millimetre in length, somewhat oval in form, resembling in colour and translucency a piece of resin or dark amber. A careful external examination gave the impression that it was of crystalline structure, and had grown up by accretion. We next proceeded to carefully crush it upon a glass slide, when its hardness seemed to be about that of a sugar crystal, but the fracture revealed a structure radiating from the centre with a tendency to break up into wedge-shaped pieces as long as half the diameter of the original mass. Finding it to be perfectly insoluble in water, we attempted to dissolve a portion in alcohol, but without success. Treatment with sulphuric acid produced no sign of effervescence, but in a few hours the acid acted upon it sufficiently to change the outer portions from clear brown to dense white, and to throw down a flocculent white precipitate bearing some resemblance to the amorphous condition in which phosphate of lime has been found in organic secretions. Another portion treated with hydrochloric acid yielded more readily, breaking up into wedge-shaped pieces and partially dissolving, but crystallising again as the liquid evaporated. Time at disposal has not admitted of further investigation as to the nature of these crystals. Whatever may be the composition of this substance, or the causes of its formation in the position where found, it seems very probable that its presence would cause an obstruction in the alimentary canal which would be sufficiently serious to interfere with the processes of nutrition to an extent which would be very detrimental to the healthy discharge of other functions.—ED.]

LARGE *VERSUS* SHALLOW FRAMES FOR EXTRACTING.

[192.] In the last number I note you say 'The matter of the shallow frames may now be allowed to drop.' For some time past I have noticed remarks respecting the 'shallow' frame, but could not understand what it meant. I may say I have only taken up the *Journal* since June last, or rather commenced it then for the second time. About twelve years ago I commenced bee-keeping upon the improved system, and was fairly successful from a mercenary point of view. I found it very interesting, and should perhaps have continued bee-keeping but for one cause. In 1880 I was tempted to 'go in' for a swarm of Ligurians. From these I raised many queens, and placed them at the head of most of my other hives the next year. I had some eighteen or twenty such, and then I got disgusted with bees. These hybrids were the nastiest, 'stingiest' things I ever came across. I gradually got inured to being stung, but these did but little else than *sting and breed.* Smoke would not quiet them, and they would not store honey. To feed up in autumn required four times the amount of syrup that a few hives of blacks by the side of them required. These latter were the only ones which gave me any surplus. I attempted to re-queen the hybrids with black queens; but it was no good, they would not have it. In 1883 I removed to fresh quarters, and ceased to be a bee-keeper until last June, when I purchased three swarms of *hybrids* again. These are not so docile as the blacks, but I can manage them, being much different to my previous hybrids, and although I could not expect to do much with them last year, I intend to 'keep bees' again. I regret to say my 'tackle' consists of Abbott's standard size, which is much larger than the Association standard, and as I am desirous of getting extracted honey, will you kindly give me advice on the

following plan:—My three hive are *very strong*, in fact each has nine frames, seven of which are full of brood; the hives are crammed with bees. I am thinking of taking two frames from each hive (putting full sheets of foundation in their place), and place these six combs on the top of the strongest hive, of course putting excluder zinc between the two. As the bees hatch out, the combs will be filled with honey (weather permitting).—G. E., *Exmouth.*

[The frames you have are altogether too large for use in surplus chamber for extracting purposes. The better course will be to allow each of the hives to retain its eight large frames, and tier up with boxes of shallow frames, fitted with full sheets of foundation, using excluder zinc between, and covering up the portion of the large frames which extend beyond the shallow frame box. —Ed.]

Queries and Replies.

[60.] *Feeding Supered Hives.*—As I am expecting a swarm from G. N. & Son, I seek your advice once more. I shall want to feed for about two weeks, and at the same time put on the crates after giving frames full of foundation. 1. How shall I be able to feed with crate on? 2. What amount of quilting is required at this time of the season? 3. Having fed a stock of bees since last April, do you think I could put on crate and *stop* feeding or *continue* it? 4. As I shall not want to 'humbug' my bees too much, as novices are apt to do, by moving crates off and on, and as the bees are now on seven frames, should you advise me to put the three frames of foundation in and leave alone till end of season, after giving crates of sections? 5. Which method should you adopt, putting No. 2 *over* or *under* No. 1 crate?—Leicester, *May 13th.*

Reply.—1. Only by adopting the dry-sugar frame-feeder, unless the hive is of sufficient capacity to allow the crate being so placed as to leave a couple of frames uncovered. 2. After removal of 'winter packing,' little or no difference need be made in top coverings except for convenience. 3. All depends upon the amount of food coming in and the quantity stored. 4. Give the three frames of foundation now, and the crate of sections in a week. 5. As you 'do not want to humbug the bees too much,' put No. 2 *over* No. 1; it causes less disturbance.

[61.] *Bees Dying.*—Can you or any correspondent tell me why some of my bees drop off the alighting-board, run along the ground with their wings stretched out, and fly no more? I have ten stocks of bees, very strong excepting for the above.—C. H., *Preston, May 12th.*

Reply.—There is no cause for alarm at a few bees dropping off as stated. They are often young bees, and if examined will be found to have defective wings or be in some way malformed. Sometimes we have seen them drop off the alighting-board and run along the ground, reminding us of a child running off in a 'huff' after receiving a thrashing. Probably a few days will see all going on right since your stocks are 'very strong.'

[Referring to the above, we would again remind correspondents to send full name and address (for reference). Also to say whether letters are for *B. B. Journal* or *Record.* We shall have to print this query in both papers to ensure its being read by the writer.—Ed.]

[62.] *Selecting Drones.*—1. Will you kindly inform me how I can fly only Carniolan drones? I have a stock of pure Carniolans, and one of hybrids (Carniolan blacks.) 2. Should I cut the drone brood-comb out, or only the drone-cells off one side the comb? 3. Can I keep the Carniolans pure in a garden where there are English bees flying? 4. Are the workers produced by a black drone and Carniolan queen equal to the workers by a Carniolan drone and black queen? Which would you prefer?—T. G.

Reply.—1 and 2. Only by entirely preventing your other stocks from raising drones—a proceeding we strongly disapprove of. 3. No. 4. Our experience is so far confined to hybrid Carniolans from black drones, and they are so satisfactory that we save trouble by being content with what is a very good bee.

[63.] *Size of Hives.*—I have made a large hive to hold sixteen frames in bottom, and also one to go on the top holding twelve Standard-size for extracting. Must they be shallow for supering, or will Standard-size do?—W. Alexander, *Hungerford.*

Reply.—You had better keep the second hive, holding twelve Standard frames, for another stock, and use shallow frames on the large hive for extracting purposes. The boxes of shallow frames may be tiered up to any extent, according to the needs of the season.

[64.] *Returning Swarms.*—Yesterday morning a strong swarm issued from one of my stocks during my absence from home. On returning in the evening, I found it had been secured for me, but no one could tell me from which hive it had come. I was anxious to return it, but owing to the uncertainty as to which stock it belonged to, I placed it in a new hive with full sheets of foundation. This morning, just before leaving home for Shanklin, I was informed as to the actual stock it came from, but I then had no time to do anything. I return on the 22nd, and shall be glad of your advice as to whether it will be possible or wise to unite the swarm *then* with the old stock. If not, what will be the best course to pursue with both stock and swarm? I had just supered the stock, and the crate is still on. I had no time to remove it this morning on hearing that the swarm had come from this hive. My bees appear to be much more forward this season than last—quite two on three weeks.—H. Livemore, *Enfield, May 17th.*

Reply.—Though possible, it would be most unwise to reunite the swarm to its parent stock

a week after swarming. We advise leaving the swarm in the hive it now occupies and giving it a crate of sections in a week or so, if weather keeps fine. You may dispense with excluder zinc below section crate in this case. The parent hive will probably swarm again, nine or ten days hence: when it does, cut out all queen-cells and return the swarm. Do not remove the crate of sections.

[65.] *Supering Skeps.*—Kindly advise me, through the *B. B. J.*, what I should do with a strong stock in a flat-topped straw skep. Could I turn it upside down and put on a super, and in that case where should the entrance be? I see some of your correspondents put a frame hive under the skep, but I do not care to start another frame hive, as I have got six all doing well, and they are as much as I can attend to. The bees are beginning to cluster outside this skep on fine days, and I fear they will swarm if they do not get more room. They gave me two swarms last year and a small 'straw cap' of honey. The skep is three years old. We are having wet weather, but the bees are working well when it is possible: and there are great quantities of blossom — sycamore, apple, &c., besides raspberries just coming out.—Tipperary Woman, *Thurles, Ireland.*

Reply.—If the skep has a good-sized hole in its crown—as it should have—remove its cover at once and set on the super. If there is no hole, cut out, with a sharp knife, a circular piece of the straw two or three inches in diameter.

[66.] *Foul Brood—Fumigating Combs.*—Until last autumn I had not met with a case of foul brood in this parish, though I have driven a number of skeps. At that time a bee-keeper, whose bees are located half a mile away, found and destroyed two stocks in a foul-broody state. The hives (roughly made frame hives) were broken up and burnt. This spring I have discovered that three stocks in my own apiary are affected. Two showed symptoms earlier, one only recently. I have sulphured one—the weakest—and burnt combs and frames, scalding the hives, the boxes of which were placed over a copper of briskly boiling water and covered with the roof, so as to get a good steaming for a quarter of an hour. Then I gave them a coat of paint inside and out. 1. May I safely use the hives again? I have also melted up all spare combs which have had brood in them. I have, however, over a hundred super frames of new comb, never been bred in. Some of these were used over the diseased stocks last summer, but which particular frames I cannot say. 2. How shall I proceed to make these combs fit for use with safety? I have boiled all section crates, as some of these were also used on one diseased stock, but cannot say which. In the above cases there is an air of uncertainty about the degree (if any) of contamination. The disease was presumably contracted last year—perhaps in the autumn by robbing, perhaps before. There have been bees in the walls of an old house. These appeared to have died out in the winter of 1888–9, but bees have been seen flying in and out since. So we think robbing has been going on, and probably the disease may be traced thereto. The house has lately been repaired, but the bees' entrance has been left. There is also in an orchard an old cherry-tree, in which bees have died out in 1888–9, and which may probably have been infected. 3. Can you help me with advice how to stop the risks of infection from these two sources? I am about to attempt the cure of the two stocks, one of which is a very strong one, with formic acid. 4. Can you please say what quantity of the acid should be placed in an empty comb daily, and for how many days? Please send the number of the *Record* containing Mr. Sproule's article to which he refers in this month's number.—T. B., *Southfleet, Kent.*

Reply.—1. Scalding hives well, followed by painting inside and out, may be relied on as making them quite safe for use. 2. Fumigating the combs with sulphur will do away with any risk in using if they are left exposed to the air for a few days to sweeten. 3. Since you cannot well remove the combs from either the old house or the cherry-tree, stopping up the entrances seems the only course to adopt. 4. It is not necessary to give formic acid 'daily.' A comb has its cells, on one side only, filled with acid, and this comb with the acid-filled cells placed next the hive-side is set as far away as possible from the entrance, and left till the acid has evaporated.

[67.] *Bees Killing Drones.*—Will you please to inform me through your paper why a hive of my bees kill their drones so early? I have found about twenty outside the hive in the last two days. It is a very strong stock and appears quite healthy. It was made up of three of my own skeps which I drove last autumn. I enclose some of the drones.—J. Crouch, *Causeway, Edenbridge.*

Reply.—The drones reached us in such a 'smashed' condition that nearly all traces of form, &c., were obliterated. As far as we can judge they seem to be more or less immature, some wings being imperfect and a few of the abdomens nearly white. No alarm need be felt. Bees should never be sent loose in letters; the Post Office stamp had come down on them *twice*, not only destroying their shapes, but almost rendering your note illegible.

(Several Queries are held over till next week.)

TOILERS OF THE SKY.

How gladsome are the songs that greet
Our ear from forest, field, and street!
The songs of toilers as they fly,
The myriad toilers of the sky.

We do not know the words of song
The singers sing that haste along;
But yet we know they're songs of praise,
And Jesus knows what each one says.

The smallest gnat the eye can see
Is toiling on and praising Thee.

F. M. Master.—*Gleanings.*

Echoes from the Hives.

Beverley, May 12th.—We have at last had copious rains, and so far the season has been almost all that could be wished for, the result being that colonies are remarkably strong and in excellent condition. To-day has been a glorious day and the bees have made the most of it, pouring into their hives all day long laden. Drones have been on the wing for weeks, and to-day I got my first swarm. In several colonies the bees are well at work in sections, and I only regret I have not more supered.—F. Boyes.

Hungerford.—My stocks, five in number, have wintered well, and are very strong this spring. One lot swarmed on the 12th instant, and I have heard of two more—one having swarmed on the 11th instant. This is thought very early for this district. I have found plenty of brood in three of my hives, and put a section crate on each of them on the 10th instant, and the bees were in them the next day. Splendid weather now. Hoping for great things this year.—W. Alexander.

Green Street Green, Darenth, Dartford.—The first two weeks of May have been, on the whole, pretty favourable for the bees, though there has been a good deal of wind. Dandelions are unusually plentiful in these parts this year, and have helped to fill the gap since the cherry blossom fell. Not very much apple bloom this year I am afraid. My bees have been working well in the supers. I took off the first completed section nicely sealed to-day (May 15th), and am glad to see that many more are nearing completion.—Gerard W. Bancks.

Ashington.—Just a short 'echo' to let you know that you have readers of your valuable *Journal* here and any amount of bee-keepers: but I am sorry to say we are rather disorganized at present for want of a bee association. I will, however, leave that to our North Tyne friend, who has a better idea of association affairs than myself. Ellington records few losses; one bee-keeper there has only lost two out of twenty-two, and I don't know of any others who have lost stocks. Bee-keeping is spreading around Ellington nicely and stocks there are doing well, flowers and fruit-trees blossoming in abundance. Our own place, Ashington, reports no losses, all stocks here doing ample justice to the willow, wallflower, and arabis. Longhirst, with its nearly twenty bee-keepers, is a most charming place for the bees; there are patches of the finest land with trees around whose foliage abounds with sylvan beauty. We should give the Longhirst bee-keepers great praise for the excellent condition they have their bees in; more than that they show undoubted knowledge and wisdom in their manipulations and management. I learnt a thing or two from them, and their every word is backed up from what has appeared in the *Bee Journal*.—Carbon.

[Shall be glad to have particulars of your intended tour among bee-keepers.—Ed.]

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

F. P. (Cork).—*Finding Queens in Swarms.*—Fix up a good-sized platform similar to that shown on p. 231. On this spread a large white table-cloth. When throwing out the swarm from the skep on to the cloth only dislodge a portion at a time, by a rather gentle jerk of the skep, on to the furthest end of the platform away from the hive; direct a few bees towards the entrance with a small stick, and watch carefully for the queen as they run in. It is best to have an assistant watcher on opposite side of platform, as two pair of eyes are safer than one. With a pipe-cover cage ready in hand, you can pop it over the queen the moment you see her, without risk of her slipping from beneath your fingers. Return the swarm after sundown.

Zero (Mansfield).—*Selected Queries.*—These are sent to selected experienced bee-keepers for reply, and it is hoped thereby that readers will have the benefit of wise counsel on the subjects dealt with; but it will be noticed that all replies are very brief—just a few lines—as terse as possible, and to the point. Now, if we attempt to give insertion to lengthy criticisms from various correspondents on those replies, we shall never 'get on;' hence we must ask that readers will gather all the good they can from the various opinions expressed, and pass by what they happen to differ from.

E. R. Brindley.—*Chilled Brood in Outer Combs.*—With brood on the outside combs, and only four frames in the hive, it shows the queen wants room. She would not lay eggs in the outer combs unless compelled to do so; and the bees also have a strong dislike to cluster against the wood of the hive-sides before the weather becomes warm. Give a couple of frames of comb, if you have them by you, on the *outside* of those in the hive, and wrap up warmly. Add a couple more quilts, and a board over all. A few days will, we hope, show a better state of things.

W. J. S.—*Wax Extracting.*—If the wax is allowed to run into a dish of warm water the cake may be lifted off solid after the water is cold; the underside of this cake of wax then requires the soft portion removed with a knife, and if it is re-melted in clean water it will be in good condition when removed from the surface of the water a second time.

W. R. Fox.—The paragraph sent went the round of the papers some months ago.

B. E. (Chiswick).—The insect sent is a common wild bee of the *Andrena* species.

THE

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Editorial, Notices, &c.

THE DISCUSSION ON FOUL BROOD AT THE CONVERSAZIONE OF B. B. K. A.

The discussion on the question of 'Coping with Foul Brood' at the *conversazione* of the B. B. K. A., on Tuesday, the 20th inst., although resulting in no practical suggestion likely to be of immediate use, was both interesting and useful, as revealing facts tending to show how enormous are the difficulties, from a scientific point of view, in the way of effectually destroying bacterial germs, which lie at the root of the evil.

However, if Mr. Meggy's resolution—which met with the unanimous approval of all present—is carried out in all its fulness, and systematic returns are really sent in to the B.B.K.A. by its affiliated Associations, it may reasonably be hoped that facts of sufficient importance will be collected to warrant the Minister of Agriculture in giving the matter proper attention.

For the present, however, we must rest content with the knowledge that eminent scientists are earnestly labouring to discover a really effective agent for the destruction of the dreaded microbe.

Naphthaline is a new remedy for foul brood proposed by Dr. Lortet, and from experiments made so far it seems very effective. The crystals are spread on the floor-board of the affected hive, and in mild cases it succeeds in curing, but must be given in solution in bad cases, so that the bees take it inwardly. It is a powerful disinfectant and destroyer of microbes, while it is quite harmless to bees. Remedies like this one, and we may include formic acid, as proposed by Mr. Sproule, of Dublin, simple in application and involving comparatively little labour or trouble, are far more likely to be received with popular favour, and have far more chance of receiving a fair trial, than more complicated methods or such as need an amount of scientific accuracy, skill, and thoroughness, quite beyond what can ever be expected from the ordinary bee-keeper.

So thoroughly alive was the general feeling of the meeting to the necessity for prompt action, that it augurs well for the success of any movement having for its object the minimising, if not of altogether stamping out, the mischief; and we look forward with the confident assurance that British bee-keepers will not allow this matter to continually remain a stumbling-block to progress in bee-culture.

Once let the Department over which Mr. Chaplin presides realise how important is the subject—by reason of its close connexion with successful fruit-culture—apart altogether from the interests of bee-keepers themselves, and we may expect to soon see the day when this pestilent bee-disease will be as effectually dealt with as any other plague connected with agriculture or inimical to its interests.

We have of late so frequently drawn attention to the foul-brood question that we shall now leave the matter for awhile, to discourse on the more congenial topics of honey-producing and successful bee-keeping. All the same it is to be hoped that the lessons taught by the discussion reported on another page will not be lost, and that the greatest care will be taken by all bee associations to avoid and steer clear of so sad a condition of things as was revealed at the meeting referred to. The adage, 'Prevention is better than cure,' could not possibly go home with more force than when applied to bee-keeping.

USEFUL HINTS.

Weather.—A fine ten days before and lovely weather for Whitsuntide has tended to maintain the hopes that we are to have a successful year for bees. During almost the whole of the latter half of the month a cool wind has tempered the heat, and no doubt reduced the amount of honey

stored: but in no case do we hear of bees 'going backward,' as they so frequently do in early summer after having made a good spring start. We have been out to see our own stocks, temporarily located at Bushey, Herts, and found abundance of brood in all; not so much newly gathered honey as we had hoped to see, but, on the whole, all doing very well.

Set down in a district the honey resources of which are as yet entirely unknown to us, and some sixteen miles distant, with no guiding hand about them, we do not look for a brilliantly successful season for our own bees: but time will show. The first experience of our friend in charge was not very encouraging to him, however, for, being unable to leave town, we had to trust to his watchfulness, and the bees wanting room, &c., started swarming. One swarm went on the 'rampage' in a manner that was more amusing than serious, for after being hived and rehived in a skep we forget how many times on successive days between its 'coming off' and our appearance on the scene on the 24th, we found them 'out again,' swarm sadly reduced in numbers, clustered *on the ground*, and the skep empty!

A short time afterwards the worn-out-looking truants were back in the parent hive, and once more 'at home.' We told our friend he had had more trouble with that one lot than all our swarms had given us for the last twenty years!

Preventing Swarming.—With ordinary care, timely room, ventilation, and *not too much handling* or disturbance, we do not think much trouble will be experienced in preventing undesired swarms this year: but, from the present strength of stocks and the rapid breeding still going on, plenty of surplus room will be wanted, and it should be borne in mind that the prevalence of the foreign element in our bees has tended very much to increase the chances of unlooked-for swarms. These bees, though usually quiet and easily handled, seem to become just as easily excited when colonies of them are much disturbed and pulled about, and at such times will swarm at times when they have plenty of unfinished super work on hand and everything seems to be provided against.

Self-hiver.—We are very pleased to note that the 'Bennett Self-hiver' has scored a complete success in the first trial of it, reported in next column. Not only was the swarm found safely esconced in the new hive, but the 'arrangement' was on for ten days, and, according to our correspondent, the bees suffered 'not the slightest impediment' in working. No doubt further reports will reach us later, but its first success gives assurance that a distinct step forward has been made, and that bee-keepers have now a means of relief from many anxious hours when away from their bees at swarming-time. We do not care to make comparisons, but certainly the 'self-hiver' of Mr. Alley—nor any other we have heard of from the other side of the Atlantic—is 'not in it' with that of Mr. Bennett as a practical working arrangement.

SELF-HIVERS—A SUCCESS.

Sir,—I do not know whether you have received any reports as yet as to the practical working of the self-hivers. It has occurred to me, therefore, that you may be interested to know my experience, although a mere novice in bee-keeping. Of the two plans suggested in the *B. B. J.*—perhaps I ought to say three—Mr. Bennett's commended itself especially to my mind, and I thought I would give it a trial. I had but one hive—a cottager's bar-frame—although I should have three. Last year early I bought a straw-skep swarm, which kept me watching something like a fortnight for a swarm from it. I found, however, that comb was being formed between the skep and zinc cover, and when this was removed, the swarming fever seemed to vanish. Then I was recommended to drive the bees into a bar-frame hive which was done. I know now, but did not know then, that the business was mismanaged. After remaining about twenty-four hours in their new quarters, the driven colony joined a new swarm I had shortly before had presented me by my friend, Mr. Flynn.—the pioneer bee-keeper in these parts. Thus I was reduced to a single colony, but it proved an excellent one, and having taken in honey last year, the stores for the winter were abundant. I expected, under these circumstances, to have an early swarm this season, and consequently made preparation accordingly.

About three weeks ago I placed an empty hive—one of home manufacture, moreover, made in movable sections with double walls and separate floor-board—in front of the other one. At first I just rested the hive on the alighting-board of the latter, but put it close to the entrance of the new one to test it. Having satisfied myself on this point, and acting on the advice of Mr. W. J. McNally, I then brought the hives closer, so that the entrances of each were covered by the tunnel, opened out the doors, and so left it.

Thus matters remained for ten days, the bees working away vigorously without the slightest impediment. On Thursday last a stream poured out from the hive, but, after careering about for some time, returned. Friday, the same thing was repeated, but this time not to the old home. When all had got settled down, I went to inspect, and to my great delight my swarm was safely and snugly housed in the new quarters. I left all undisturbed until evening, and then, removing the hive to its permanent position, gave some syrup, and since then work has been actively going on. Others are now following my example. Some were rather sceptical of the success, but all doubt, I think, should now be set at rest.

I tender my sincere thanks to Mr. Bennett for his suggestion, which can be turned to such practical account. And I am quite sure that many bee-keepers, if they give the system a fair trial, will join with me in doing likewise. If this communication is not too long, and should you consider it would be of any interest to the readers of the *B. B. J.*, you are at liberty to make any use of it you please.—J. M. N.

BRITISH BEE-KEEPERS' ASSOCIATION.

The second quarterly *conversazione* of the present year was held on Tuesday, May 20th, at six p.m., at the offices of the R. S. P. C. A., 105 Jermyn Street, S.W. Among the company of ladies and gentlemen assembled were Rev. W. E. Burkitt, Captain Campbell, and Messrs. Garratt, Grimshaw, Hooker, Jonas, Lyon, Meggy, &c.

Captain Campbell having been elected chairman, called upon Mr. Garratt to address the meeting on the subject of Foul Brood, a matter which claimed the most serious attention of all bee-keepers, and one concerning which that gentleman had recently had some remarkable experiences.

Mr. Garratt said he had sought that opportunity of bringing under notice the continued existence of foul brood, especially as there were certain districts in his own county of Kent where the disease appeared to have taken deep root. His object was to obtain an expression of opinion as to the best way of practically dealing with the evil when found existing in what might be called its strongholds. His attention was specially drawn to the matter recently, while on a visit to a district in the area of the Kent Association. Upon finding one or two instances of the disease, he had advocated certain remedies; but upon discovering that there was not a single apiary in the locality not affected more or less, he felt that it was time to desist from giving off-hand advice, and that he could not do better than state the circumstances before a meeting like the present. He knew that highly scientific remedies had been proposed for the cure of foul brood, but these had been tried (not always by scientific people) often without success, so that confidence in them became shaken, and humble bee-keepers looked for further guidance. So serious had the evil become in the district he referred to, which had formed one of the strongest branches of the County Association, that even those who had taken prizes in apiary competitions had been heard to say, 'If it comes to me again I will have no more to do with bee-keeping.' He might contrast those facts with the condition of another district in the same county which he had visited a week earlier. There the disease was conspicuously absent, not a trace of it being found. It could not be doubted that the subject was of the utmost importance to all bee-keepers, and that no time should be lost in searching for a means of stamping out the evil. In regard to the Kent Association the prospect was most saddening, for hitherto the infected area had been one of the most promising centres of the county. The advice he had tendered in the first instance for the purpose of eradicating the disease was, 'Get rid of your queens, and get your hives re-queened.' He looked upon that as the first step to any effective remedy. Of course the combs in which foul brood existed must also be destroyed as quickly as possible. Occasionally it was necessary to closely inspect a hive before the presence of foul brood could be discovered, but in some of the cases he referred to the most cursory examination revealed unmistakable evidence of it. If the queens were removed, and fresh combs or comb foundation supplied, a new start could be made, most probably with better success. Cheshire's experiments went to show that the queen was the source of the disease, and that no good would be secured by retaining her at the head of the colony. Bee-keepers recently had had their attention called to the action of some foreign legislatures, which had taken cognisance of the evil and adopted means to cope with it. In Germany and Canada the law justified persons placed in authority for the purpose to inspect and condemn all hives affected with foul brood. In the unfortunate locality of which he had spoken there were several sources from which the disease emanated, and the result was that members living there who had been lucky enough to escape the contagion became so scared that they absolutely refused to allow their hives to be inspected by the expert, and appeared (singular as it might seem) to give their subscriptions in order to keep him at arm's length. If there were power given to some one to inspect hives compulsorily, an effectual remedy might be carried out. He would be delighted if the B. B. K. A. could find a way of moving the Board of Agriculture to do something in the matter, which was one that affected bee-culture to its very foundation. The area in which foul brood was prevalent so largely was an inland district lying high, no rivers passing through, but only a small stream perhaps. The soil was what was usually called 'cold.' The healthy district was near the sea, and on chalk.

Mr. Lyon said that some years ago, when Mr. Cheshire brought out his cure, he (the speaker) took it up for him commercially, and was enabled, from the immense number of applications that passed through his hands, to map out and follow up the course of the disease, which was found to exist mostly in low, swampy, and cold lands. His experience tended to show that high chalk lands were not favourable to the development of foul brood.

Mr. Hooker had suffered from it very badly when he lived at Sevenoaks—550 feet above sea level. He recommended as a cure the complete destruction of the hive by burning.

The Rev. Mr. Burkitt had only once experienced a case of foul brood, at an altitude of 850 feet above the sea. He believed it was communicated by a stray swarm found in a wood down in a valley, which bees he had introduced to his apiary. He used Cheshire's cure, put camphor in all his hives, burnt all the affected combs, and had never had a case since. He always used salicylic acid and camphor. He thought the malady was rare in Wilts.

In reply to Mr. Jonas, Mr. Burkitt said the diseased bees in his apiary were English.

Mr. Garratt was unable to speak with certainty regarding the species in the locality he had specially referred to, but he believed, as Mr.

Jonas appeared to suggest, that foul brood was not so prevalent among native as among foreign and hybrid races.

Mr. Jonas had had no experience of foul brood although he had kept bees for thirty years in the same garden, and had never known a case of it in his district—about four to five miles in circumference, low-lying, and on chalk with no water. He had never introduced a foreign queen but once.

Mr. Hooker had kept bees forty-five years, and until the introduction into England of Ligurians had never known or heard of a case of foul brood.

The Rev. Gerard W. Bancks suggested that it might be desirable to ascertain whether any kindred disease existed amongst the wild bees of England: whereupon Mr. Grimshaw pointed out that such discovery, if it could be made, would have no bearing on the question, because the honey-bee and wild bee were distinct races, not nearer related than dogs and wolves.

The Rev. Mr. Bancks (continuing) spoke of the prevalence last autumn and this year of foul brood, several cases of which had come under his notice. It had been the custom to wash out a hive with three or four per cent of salicylic or carbolic acid, but German experiments showed that a five per cent solution of a certain chemical took twenty-four hours to destroy the spores of anthrax (much tougher in character no doubt than *bacillus alvei*), whilst a five per cent solution of salicylic acid had no effect thereon in fifteen days. Mr. Garratt's suggestion of removing the queens was probably the first step to the cure of foul brood.

Mr. Grimshaw had had no experience of foul brood, but he had some knowledge of the treatment of *bacilli*. He thought the last speaker was quoting from Klein, the result of whose, as well as of other scientists', experiments, showed that the spores were practically indestructible. Even if the foul hives were immersed in almost as strong a solution as possible of corrosive sublimate, little good would be done. The organism itself might be dealt with, but with its germs they could not deal: and therefore it would be well to dismiss from their minds the idea of using carbolic or salicylic acid in the very small proportion generally adopted as a cure for foul brood. The means to be adopted were preventive. Let them deal with the hive as they would with their home—keep it scrupulously clean, and do not unnecessarily open it in early spring, thus chilling the brood, and leaving it in a favourable condition for the spores to alight on, and in a few short hours fill the body of the larva with *bacilli*. The bees moved about from cell to cell, and in and out of the hive, and as one breath of air was sufficient to blow millions of the *bacilli* into the neighbourhood, it was not surprising that the disease rapidly spread. He recommended, also, that camphor should be used, or, indeed, anything that would create a pure, clean atmosphere in the hive, thus rendering it impossible for the *bacilli* to reproduce their species. A writer in the *B. B. J.*, not quite unknown to himself, advocated the use of pure terebine. The vapour of terebine united with air gave an odour not unlike that issuing from pine forests, and was a very good atmosphere for the bees to breathe. He did not believe it was possible to stamp out the disease, any more than it was possible to stamp out smallpox or typhoid fever: the only thing to be done was to prevent its spread, and where the evil did exist the only effectual remedy was Mr. Hooker's—'Burn the lot, hives and bees!' He bowed with all deference to the opinions of such eminent authorities as Mr. Cheshire and Mr. Cowan, but thought every one must admit that the remedies proposed had, in a measure, failed. Destroying the queen would not deal with the difficulty; he did not think she laid diseased eggs, and it was no use to get rid of the queen while diseased workers were running about. It was not established that the queen was the source of foul brood; even Mr. Cheshire did not say more than that he believed her to be so. Experts had found that the number of *bacilli* per cubic inch varied with the height of the land above water-level, and that it was largest in low, swampy districts.

Mr. Meggy had recently, in Essex, had several cases of foul brood under his notice. Last autumn the expert found the disease in four districts, and took steps to get rid of it; a hive of his own was affected, and the treatment pursued was to cut out and destroy the combs most foul, change the frames into a fresh hive, and get rid of the queen: the result of such remedies being that, notwithstanding some remarkable experiences during the winter (the roof having blown off and the rain poured in during the night) the hive was a perfectly sound and healthy one at the present time.

Mr. Lyon, in a few remarks, pointed out how Mr. Cheshire had cured a hive sent to him for the purpose of experiment, and which was almost rotten with foul brood when sent, this same stock being exhibited in a perfectly clean state at the Health Exhibition held a few years ago. After this he (Mr. Lyon) used phenol to some of the other hives with excellent effect every year, the difficulty being that the disease broke out afresh, sometimes owing, as he believed, to infection from the surrounding hives. In order to ascertain whether his suspicions were well founded, he removed one hive to his own house, and subjected it to the phenol treatment with complete success.

Mr. Grimshaw said that the germs of foul brood might be steeped in the strongest possible solution of phenol with no effect as regards the destruction of them. Mr. Sproule was now experimenting with formic acid for the prevention of foul brood, and had obtained very successful results, a description of which had recently appeared in the columns of the *Bee-keepers' Record*. His investigations were well worthy of serious attention.

Mr. Jonas suggested that it was possible the disease had not been thoroughly eradicated in the hives under the care of Mr. Lyon: to which

the latter gentleman replied by quoting the case in which he had removed a hive to his own residence away from surrounding infection. with the best results.

Mr. Garratt was much gratified by the discussion that had taken place, but regretted that it seemed impossible to send any message of hope to the unfortunate district of which he had spoken. He was unwilling to believe there was not some simple way of dealing with the scourge, without involving the complete destruction of a hive and all its belongings. Scientific modes were impracticable for cottagers. They had no acquaintance with precise methods, and could not be trusted to deal with mixtures and solutions where extreme accuracy of measurement was necessary.

The Chairman thought the germ theories might well be left to scientists to decide, and that the question for them, as practical bee-keepers, was—How could the disease be cured, prevented, or mitigated? Experts had been refused admission to healthy apiaries because of the risk of carrying the taint to sound colonies, and he did not wonder at it. It ought to be the duty, religiously observed, of every expert, to carry disinfectants about with him, and to use every means in his power to avoid communicating the contagion. He then described at some length his own experience of foul brood, and how the purchase of some hives, at the instigation of a widow lady, and their removal to his own apiary, resulted in foul brood making its appearance among his own stock, with very unfortunate results. He started anew with one hive, and now had nine. He quite endorsed Mr. Grimshaw's recommendations regarding scrupulous cleanliness, &c., for the purpose of prevention. With straw skeps there was no chance of exterminating the disease except by burning.

Mr. Meggy proposed, and Mr. Garratt seconded:—'That this meeting requests the Committee of the B.B.K.A. to invite systematic returns as to the existence and extent of foul brood in their different localities from the district secretaries or experts of associations in affiliation with them, and as soon as they have obtained the information named to communicate with the Minister of Agriculture on the subject.'

The resolution was carried unanimously.

Mr. Truss's queen-cage, which could also be used as a feeding-box, and had been employed by the inventor in both capacities last autumn without a single failure, was exhibited and inspected by the audience.

Mr. Bennett's 'Self-hiving Arrangement' was, in the absence of Mr. Carr, exhibited by Mr. Meggy, who explained that one end was intended to be placed over the entire entrance of a hive when the bees appeared to be about to swarm. It should be put there a day or two before the swarming was likely to take place. Of course the other end of the contrivance was fixed to the new hive. It was intended that the 'Arrangement' should be kept perfectly horizontal. Most persons would be inclined to place one end higher than the other, because bees had a tendency to run upward, but Mr. Bennett's idea was as stated. There did not seem to be any provision for the escape of the drones, which might perhaps be a difficulty.

Mr. Lyon had used something similar nine years ago, when he lived at a distance of eighteen miles from his bees. He left the contrivance fixed to two hives for a few days, because he thought swarming would shortly take place, but it did not. The objection to the alley was the confinement of the drones, and consequent excess of heat in the hive.

Mr. Grimshaw thought the idea theoretically perfect, but was in favour of raising one end of the cage. He did not think much of the difficulty about the drones, which might be liberated the same day or the next day, by which time probably the queen would be fairly settled in her new quarters.

Mr. Hooker said that if one end of the cage were closed it would make a capital drone-trap.

Mr. Garratt thought there was little to fear in regard to the drones, of which there ought not to be many in the hive.

Mr. Garratt moved, and the Rev. Mr. Burkitt seconded, a vote of thanks to the Chairman for presiding, which compliment was briefly acknowledged, and the proceedings terminated.

DEVELOPMENT IN THE HONEY BEE.

By R. A. H. Grimshaw.

(*Continued from page* 172.)

Again, when we read of the ease and freedom with which the early bee-fathers handled our English bees when they were kept in the old straw skep, when there was no manipulation or artificial swarming, when all bees interfered with and irritated in any degree were destroyed by sulphur fumes (thus destroying any chance of a developed stinging instinct), we can scarcely help coming to the conclusion that the English bee of to-day is becoming more vicious year by year—is, in fact, a more savage insect now than it was in their day. The reason of this growing irascibility is not far to seek. We temporarily subjugate our bees by smoke, break up their nests, exposing bees, brood, and honey to the light and air (many times when the temperature is most unsuitable for such a disturbance), the smell of honey is spread abroad in the bee-garden, with the frequent result that robbing is started, and robbing means fighting for and defending stores. Then, when surplus honey is to our hands, we commence operations *de novo*, followed by the further annoyance to the bees of feeding and packing up for winter. Can it then be wondered at, that year after year of this torturing, tantalising treatment by the bee-keeper (who never destroys his bees), is fostering and developing bad temper in our workers? The marvel would be if it were not so. Certainly there is another important factor to be considered when we contemplate the question of vice in bees. I allude to the undoubted effect

produced by crossing the various varieties found in the region of the Mediterranean. It is one of the mysteries of animal physiology that the cross of *species* is accompanied by an exhibition of virulent temper. This seems to be the case when *varieties* of bees are mated, although it is difficult to see how quiet Ligurians (for example) crossed with ordinary blacks can possibly give us a bad-tempered worker. And here, in passing, I must say a word on the inaccuracy, so frequently committed, of terming the results of crossed *varieties* hybrids; this name is only correctly used when species are crossed, as *Apis* with *Bombus* for example, if that were practicable.

For centuries, indeed as far back as history takes us, bees have been kept in Egypt and Palestine. They have been disturbed in their quiet working by man, and seem, in Egypt at least, to have been moved from place to place almost daily during the ingathering time. In Cyprus they do not seem to have been subjected to so much irritating treatment, the dried adobe cylinders being fixtures, and only opened at the end furthest from the entrance when honey was required, the bees being smoked or driven in terror forwards; but the bees from all three countries seem to be viewed by British bee-keepers with nearly equal disfavour because of their fickle temper, and especially is this the case when they are interbred with our own bee, which, by the way, we should cease to consider indigenous, giving it what, in my opinion, is its true name, the German or brown bee—black it is not, except in old age, when the beautiful pubescence is worn and torn off the thorax and abdomen. Temper, bad temper, truly speaking, may be developed amongst bees under domestication by year-after-year's meddling, so-called manipulation, the growing irritability (increased in the worker as we increase the disturbance) being handed down to posterity—or rather to the foster posterity — by the nurse-bees in summer, and by the old winter-survived workers in early spring. To every one who has given the subject any consideration it must be evident that whatever is hereditary amongst our worker-bees cannot be inherited from ancestors not themselves possessing such characteristic peculiarities and instincts as we observe in the nectar-gathering, cell-building, brood-feeding bees. If, however, it be argued that these instincts are latent in the drone and queen, they must have been latent also in their parents to an almost infinitely long period backwards in the unwritten history of bee physiology—indeed, quite back to the suppositious time alluded to in the commencement of these papers, when we are brought face to face with the *development* of these very instincts. We are thus confronted with the horns of a dilemma, viz., the worker-bee does not inherit her instincts from her male and female parents, and, being unfertile, cannot hand them down to future worker-bees by any means except the following:—She may feed drone, queen, and worker eggs by a secretion of special glands for varying lengths of time with varying results (proof of this is found in the varying analyses of egg and brood food and in the check to queen-rearing which may be given on the third or fourth day by the substitution for this food of the semi-digested honey and pollen of the chyle food of Schönfeld and Cowan). Some years ago Darwin, in his *Plants and Animals under Domestication*, wrote an important chapter on the almost deserted theory of Pangenesis, the contributed testimony towards which was of the utmost importance. There can be little doubt that had the researches made since his time into the methods adopted by bees for differentiating the sexes and for handing on to posterity their inherited and developed experience known to us as instinct been at his disposal, he would have so marshalled the facts and evidence that considerable support would have been given to such an important theory. When we think that in the circulating life-fluid of all things, animal or vegetable, there are minute cells whose mission it is to attach themselves to suitable growing-points, and only to such points as they are designed for—building up new structure, and repairing all the wasting tissues of the organism, some building up bone, muscle, sinew, horn, nails, hair, skin, repairing fracture and dissolution, every cell being capable of bearing within it some hereditary peculiarity, be it of perfection, of taint or degradation—we may see how truly simple is the key to the puzzle of heredity amongst our bees, how easy and feasible for the individual experience of the bee to affect the brood it feeds through the channel of the glands used in the earlier kind of brood food, pouring forth a part of its very being pregnant with all the instincts developed by worker-bees in countless generations, not only affecting the brood directly, but giving them even a second and third impulse of potency through the brood food fed to immediate parents —queen and drone.

There are two things the student of apiphysiology should never lose sight of, and although they appear startlingly false at first sight, a little calm thought and logical deduction will show their accuracy. The first is, that all eggs produced by the body of the queen-bee are male. Of her own entity and very self she brings forth only males; but adding to the drone-egg *in transitu*, before it is ejected by the ovipositor, something quite foreign to her own system (obtained from the drone), the sex is altered from male to female. The second fact is that there is no such thing as a worker-egg; that is, every egg (abnormal or aborted excepted) that is ejected by the queen is either drone or queen. It is the after-treatment of the egg by the nurse that determines its destiny as a worker or as a queen-bee; it is not, as generally supposed and taught, the superior treatment of a worker-egg that results in a young queen, but the inferior treatment of a queen-egg that gives us a worker. Drones in worker-cells, workers in drone-cells, worker and drone eggs in queen-cells, show that cell-constriction has not so much to do with sex as is commonly believed.

(*To be continued.*)

AN ACT FOR THE SUPPRESSION OF FOUL BROOD AMONG BEES.

(*Concluded from page* 245.)

7. Should an owner or possessor of bees refuse to allow the inspector, or his assistant or assistants, to freely examine said bees, or the premises in which they are kept, or should such owner or possessor refuse to destroy the infected bees and appurtenances, or permit them to be destroyed when so directed by the inspector, he may, on the complaint of the inspector, be summoned before a justice of the peace, and, on conviction, shall be liable to a fine of not more than $50 or less than $25 for the first offence, and not more than $100 or less than $50 for the second or any subsequent offences, and the said justice of the peace shall make an order directing the said owner or possessor forthwith to carry out the directions of the inspector.

8. Where an owner or possessor of bees shall disobey the directions of the said inspector, or offer resistance to or obstruct the said inspector, a justice of the peace may, upon the complaint of said inspector, cause a sufficient number of special constables to be sworn in, and such special constables shall, under the directions of the inspector, proceed to the premises of such owner or possessor and assist the inspector to seize all the diseased colonies and infected appurtenances and burn them forthwith, and if necessary the said inspector or constables may arrest the said owner or possessor and bring him before a justice of the peace, to be dealt with according to the provisions of the preceding section of this Act.

9. Before proceeding against any person before a justice of the peace, the said inspector shall read over to such person the provisions of this Act, or shall cause a copy thereof to be delivered to such person.

10. Every bee-keeper or other person who shall be aware of the existence of foul brood, either in his own apiary or elsewhere, shall immediately notify the President of the Ontario Bee-keepers' Association of the existence of such disease, and in default of so doing shall, on summary conviction before a justice of the peace, be liable to a fine of $5 and costs.

11. Upon receiving the notice in the preceding section mentioned, or in any way becoming aware of the existence of foul brood in any locality, the said President shall immediately direct the said inspector to proceed to and inspect the infected premises; provided, that when the person giving such notice is unknown to said President, or there is reason to believe that the information in said notice is untrustworthy, or that the person giving such notice is actuated by improper motives, then the said President may require the person giving such notice to deposit the sum of $5 with the President as a guarantee of good faith, before the said notice shall be acted upon, and if it shall prove that said notice was properly given then the said deposit shall be returned to the person giving such notice, but otherwise the said deposit shall be forfeited to the use of the said Ontario Bee-keepers' Association.

12. The said Association shall include in its annual report to the Minister of Agriculture a statement of the inspector's work during the preceding year, which statement shall include the number of colonies destroyed by order of the inspector, and the amount paid to him for his services and expenses for the preceding year.

13. The Executive Committee of the said Association may from time to time make such bye-laws and regulations for the control and guidance of the inspector in carrying out the provisions of this Act as they may deem necessary, and the said Executive Committee shall also by law fix the amount of the remuneration of the said inspector and sub-inspector, but all such bye-laws and regulations shall be subject to the approval of the Lieutenant-Governor in Council.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 1st page of Advertisements.)*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

CHANGING HIVES.

[193.] I have, during the last few days, as time and weather permitted, been shifting most of my bees into clean hives, and I am glad to say they are all in first-rate condition—or perhaps I ought to except one which is not quite up to the mark as regards numbers, but has as much brood as the bees can cover. My method, in changing and cleaning hives, is to have an empty hive ready, shift the one from which the bees are to be removed, and, putting the empty hive in its place, turn up part of the quilt and spread the carbolic cloth over the frames uncovered, scrape the propolis, &c., from tops of frames, and then carefully place them in new dwelling. I then take quilt off remainder of frames, and, using carbolic and scraper as before, they are soon all transferred to their new home. Meanwhile the older veterans, evidently disgusted with my unceremonious overhauling, fly off in a huff (after giving, if possible, a practical proof of their ruffled feelings) to what they consider a more settled habitation, to wit, the hive where their sometime evicted comrades are safely ensconced. It may be that a few *young* bees, which have not flown, may be driven off the combs by the carbolic, and of course they know nothing about flying home; but I give

them a leg over the stile, or, in other words, I pick them up and carry them home. When the hive is clear of bees, I scrape and sweep it, and then scrub with *boiling* water, and as soon as dry, I am ready for the same process with the next one. I do not uncover *all* the frames at once, and I put a quilt over those in the clean hive as I put them in, as I find that bees, like 'the nobler part of creation,' prefer a roof over their heads. As to whether it pays for the trouble or not I cannot tell, but I do know that the bees appreciate it, as proved by their cheerful hum when in 'full possession.'

I do not use impervious quilts—nothing but calico, felt, and canvas: but I find that during the night, a rather large quantity of moisture has run down and out of the entrance. Would you kindly tell me if it is hurtful to the bees,* and if so, how I could remedy it? I have no ventilating holes in the roofs: the first one or two hives I made were ventilated enough involuntarily, but with putty, paint, and patience, I have made them waterproof, and, I suppose, airproof too: the bees make the quilt almost or quite impervious with propolis, so I do not know whether ventilation in the top will have any effect.

My friends who started frame hives last autumn give a good report of the condition of their bees. I hope the coming season will crown with success the present pleasing prospect of all who are, or will be, engaged in bee-keeping, whether for the purpose of increasing their knowledge of the little honey-gatherers, or, adding to what is represented in the commercial world by the little letters *l. s. d.*—G. H. JAGGARD, *Great Bromley, Essex.*

A REVOLUTION IN QUEEN-REARING—WINTER DYSENTERY.

[194.] For some time I have elsewhere been preaching a new theory, viz., that winter dysentery is solely the result of rearing queens under artificial conditions, and that it is Nature's mode of weeding out the 'unfittest' of her work. I also claim that cutting out cells, and grafting them into queenless hives, or hatching them in nuclei, or queen-nurseries, will *always* result in the production of a worthless queen, while if the same queen is reared under natural conditions, in a full stock, the combs of which are never *lifted for inspection*, and provided the mother of such queen is herself a worthy specimen, her progeny will never suffer from winter dysentery, run weak (or 'spring dwindle'), and can always be relied on for profit.

On page 18 of *Record* for March last, the Editor states that he 'never had a stock affected by dysentery in all his experience,' and apparently credits the *hive* he uses for giving such immunity. On page 41 (April), I ventured to indicate in a most positive manner his mode of managing bees, *which he admits to be quite true.*

* With the hive full of bees in May, moisture at the entrance is a sign of prosperity within, and does no harm.—ED.

Now, the only ground or information I had to go on, was the fact that he got very large crops of honey, and his assertion that his bees never had dysentery; therefore, I think I can justly claim some credit for my theory and contention, which, if true, solves a big problem in a *practical manner.*

In a footnote on page 41, he also hints that it is not new to rear queens in a natural manner, and weed out worthless stocks. Just so, nor do I so claim. What I do claim as being new, is the theory that 'worthless stocks' are the sole result of not strictly adhering to Nature's method. Of course this may not be 'new,' for what is true to-day always has been true.

In rearing queens much stress has been laid on getting queen-cells started from the egg, 'authorities' advising the destruction of the first cells. Now, it seemed to me that if the instinct of bees directed them to select larvæ two days old to save time, if these larvæ were removed, they would again select others just as old, and all my experiments convinced me that such is the fact. But if you insert a comb containing eggs into a queenless hive *that has the swarming fever on*, they will at once start cells on these eggs, no matter how many cells they may have already started, or how many sealed, or how many young queens, hatched or piping: and they will do this, even on drone-eggs in drone-cells, proving, as I think, that Dr. de Planta is wrong when he insists that bees can discern between worker and drone larvæ in the first stages. There is another important fact, viz., the bees keep the young queens in their cells two days, and will not allow them to destroy any cell, or kill one another. This I discovered in 1887, and it worked well even in the bad season of 1888. I think I have now got it to perfection: therefore, to rear queens in a wholesale, and, at the same time, in a natural manner, all one has to do is to insert eggs from time to time, and keep the 'swarming fever' on, to secure a daily or weekly supply of queens, from one hive all through the season. I had one hive so, from May 15th to August 14th.

It will be thus seen that while I condemn cell-cutting, queen-nurseries, nuclei-rearing, &c., I can really get very many more queens without such means, for no matter how many cells may be grouped together, I get the queens. These I catch in the swarms as they come off from time to time, and let the bees go back. At this age they are not fit to send a distance, but must be introduced to a fairly strong colony for two days at least, so that, with the risks, &c., virgin queens, as a matter of trade, cannot be sold for 'tuppence apiece,' yet they can be sold at such a rate as will induce bee-keepers to prefer buying queens to rearing them, so long as the breeder will devote his skill and time to selecting, obtaining, and breeding the best stock. Virgin queens, six days old are almost equal to laying ones, and have one advantage, *i.e.*, the purchaser can get pure-blooded ones, and himself provide the pure drones, which is impossible when two or more races are mated in one apiary: for, so strong is the tendency to *cross* that

one drone in a thousand is enough to make the mating doubtful, and as drones readily enter other hives, no amount of 'trapping' will control them after they have once flown.

As I intimated in *Record*, the experiment of last year was intended to get some reliable *data* on which to work. I am now making arrangements to supply any number of virgin queens six days old at 2*s.* 6*d.* each (see advertisement); and in addition to guaranteeing safe delivery, and introduction, I shall guarantee mating, and proof against winter dysentery. I am going to do this for several reasons: one is to prove in a practical manner, whether queens cannot be guaranteed against 'winter dysentery' and 'spring dwindling,' no matter what the hives, food, or management may be: another is to obtain *data*, to determine what price virgin queens can be sold at, when produced on a commercial scale—I am satisfied the price need not *exceed* 2*s.* 6*d.*; another is, whether it will be any advantage to a bee-keeper to rear his own queens. Those who intend trying the queens—and I trust every one will try them—will greatly help by sending their orders on soon—the cash may be sent afterwards—for by knowing what demand to expect, I shall know what supply to have ready to meet it. A full report of those sent out last year appears in *Record* for June.—A Hallamshire Bee-keeper.

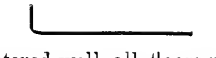
A WORD ABOUT SINGLE-WALLED HIVES.

[195.] *Re* the notes (2339) October 17th, 1889, from A. J. H. Wood, Bellwood, Ripon: while out 'wheeling' last Easter my course lay past Bellwood, and I determined to call upon Mr. Wood, and see the hives out of which he has obtained such good results. I found the hives much as I expected from the description given in *Journal*. All single walls half-inch thick, the body-boxes are simply four boards nailed together, sides 9 in. deep, ends 8⅝ in. deep, with frame ends hanging over, and a 'Simmins' roof covering all up. We had a peep at six or seven hives, and there were plenty of bees back and front: they were on seven frames with ordinary quilts on. He told me that he obtained 1500 lbs. of honey from sixteen hives, spring count last year. Surely when such results can be obtained from cheap hives like these (which only cost 3*s.* for wood, frames included) no working man need spend 15*s.* on a double-walled hive. I am a working man, and if I am persuaded to spend 3*l.* on four hives the hive-maker gets what would buy my children's shoes, whereas if I say to myself, 'Single-walled hives will do for some people—I will make them do for me,' I can then make my own and get four hives for the price of one. Again, when you want the money to spend on bee-appliances it is no easy matter to convince the 'missus' that it is a better investment than a new suit for John, or a new dress for herself; but to buy the wood, saying you are going to make it up yourself, is another thing altogether. But, single or double hives, I am convinced that single walls worked along with 'brains' are better than double-walled hives worked without, and that if a 90-lb. surplus can be got in Yorkshire I do not see why it should not be got further south. There are many bee-keepers who could be induced to try frame hives, but are frightened at the expense. When a man's wages are less than 1*l.* a-week it requires an extra squeeze for him to buy something that costs one week's wages. And these are the persons that need the help a few stocks can give. Bee-keeping is held up as a profitable hobby, and such I have found it to be, but let us work with as little expense as possible.—J. W. Daniel, 6 *Emily Street, Keighley, Yorks.*

WATERPROOF COVERINGS, SECTION RACKS, ETC.

[No. 164, *B.B.J.*, May 1st.]

[196.] I have used waterproof quilts (American cloth), first on a few, and then on all my hives, *all the year round* for the last three years, and am thoroughly satisfied with them, *but* my hives have their doorways the *entire width of front*, three-eighths of an inch high, with wooden slides. In winter I remove these entirely, but in spite of barely three-eighths of an inch head-room, mice got into two. This I have since guarded against by substituting slides of coarse perforated zinc, leaving half an inch open in the centre, the ends of the slides next the centre being turned outwards half an inch, thus:—



The stocks have wintered well, all floors perfectly dry and clean and no mouldy combs. I should add that in most of my hives I use over the American cloth a tray three inches deep (like a section rack) with cheese-cloth tacked on for top and bottom, loosely filled with cork-dust or chaff. Then, if I am giving sugar-cake (I make it about half an inch thick), I lay it on two sticks over feed-hole in the quilt with a sheet of paper over it, and put on my tray—the cork-dust yielding, the sides of the tray still fit down closely on the frame ends. These trays (Mr. Cowan's suggestion, I think) are much less trouble than layers of felt or carpet, and keep the edges closer than any cushions.

By the way, I have both parallel and right-angled frame arrangements, and find both keep equally dry on the above-named plan.

The question was asked last autumn what to do when section racks do not cover the frame ends, so as to avoid the escape of heat. Some suggested strips of felt, or a quilt with the middle cut out. I hate this plan, as it causes too free a use of propolis. I have only two hives with this defect, and I remedy it by using strips of tin (slipped under the edge of the rack) which are easily removed and always lie flat. Get a 14×10 sheet of tin and cut it lengthwise into four strips.

Whenever I remove quilts or section racks I

always scrape the top bars if clogged with propolis or remains of brace combs, so that my quilts always lie flat and close, and then little propolis is used.

This puts me in mind to mention a wrinkle which Mr. Abbott, jun., put me up to two or three years ago, which saves infinite trouble, viz., smear the bottom edges and bearers of section racks with *vaseline;* it may also be applied to the ends of 'dummies' and the ledges on which frames rest. Everything can then be moved without force or jar, quietly and without disturbance of bees. Next to the use of carbolic acid as a substitute for smoke, I consider this about the best 'dodge' out.—W. E. Burkitt, *Hon. Sec. and Expert, Wilts B. K. A.*

Queries and Replies.

[68.] *Building up Stocks—Chilled Brood.*—Would you kindly give me replies to the following questions?—1. I have three stocks on seven frames each, with a fairly good quantity of sealed brood on six of the frames in each; my hives when full hold ten frames. Now, seeing so much 'chilled brood' asked about in your columns, I am afraid to attempt the spreading of my brood. How can I have my stocks ready for the coming honey-flow? I am still feeding (two holes), but I have no comb drawn out (plenty of foundation). I want to work them for section honey. 2. If I cannot succeed in getting all to the required strength, would it be advisable to take brood from one and strengthen the other two? Of course our season here will be later than the south, and I am in a good locality. 3. Is there any honey got from what we call here 'London pride,' as adjoining my garden there is about one acre of it?—and may blossom. I think, will also be plentiful. My bees are English, and are healthy. —Coxhoe, *Durham.*

Reply.—1. Give two *full sheets* of foundation, one on each side of the seven combs now in the hives. Had this been done ten days ago they might have been drawn out before now. Adding frames to the *outside* of brood nest is in no sense 'spreading' brood, and cannot do harm. A week later, if weather keeps warm and the bees are found to cover all the nine frames, you may add the third frame—again fitted with full sheet of foundation—in centre of brood nest, and the best of your colonies should be ready for supering before mid-June. 2. Stocks with brood on six combs in the middle of May should be quite good enough to leave as they are, therefore do not rob one of its brood to aid another. 3. We never saw 'London pride' grown in quantity, and cannot speak as to its honey-yielding properties. You might kindly report result of so large a growth as one acre of it near your bees.

[69.] *Sectioning.*—I would be glad of information as to placing crates of sections on hive. 1. If No. 2 crate is placed *over* No. 1, ought No. 1 to be nearly full of honey before doing so? 2. If No. 2 is placed *under* No. 1, would it be the right time to do it when the combs are drawn out? 3. After a first swarm has issued do the bees, in what was before swarming a strong hive, continue working in the sections until the second swarm weakens the hive still further?—A Lady Novice.

Reply.—1 and 2. The need for adding crates of sections, above or below those already on, can only be judged by the bees showing signs of wanting more room, and the amount of honey coming in. One crate should certainly be well forward before giving a second lot, and in giving room nothing so much guides the bee-keeper as a knowledge of the natural resources of the district, coupled, of course, with the duration of the season and the date on which more room is given. 3. For some days after a first swarm has issued the sections are usually deserted and nothing is done in them, but as the hive fills up work is resumed more or less, to be completely stopped if a second swarm comes off.

*** *Several Queries and Letters are held over.*

Echoes from the Hives.

Near East Grinstead, Sussex, May 20th.—I began last season with one poor lot of bees; but I got them into good order and increased four lots from them, so I began the winter with five stocks. One lost its queen, and I united the bees to another hive, and have now four strong hives all in good order. I see in the *Bee Journal* of May 8th your first notice of a swarm was on May 1st. Well, sir, as I am only a young hand at bee-keeping I did not mention it, but I also had a swarm on that same date, and I hope this year to get some returns from the bees.—G. S.

North Leicestershire, May 19th.—With the exception of a couple of wet days, and about as many windy and cold ones, the weather has been favourable for bees for nearly six weeks, and they have progressed accordingly. Forage has been plentiful, and bee-flowers of all kinds have in their turn received due attention from their benefactors—the honey-bees. Just now apple, dandelion, sycamore, *limnanthes,* and gillyflower are in full blow, as are also turnips and 'greens.' Altogether there is a promising prospect for bee-keepers. No swarms yet; not a drone about, but all stocks strong.—E. B.

Calside, Paisley, N.B., May 17th.—Bees are very well forward here. My four hives wintered well without my reducing the number of frames, and I gave them very little extra packing. I had drones flying from two hives on the 28th of April, and to-day (17th May) I had a swarm, very much to my surprise. The day was showery with a high wind, and they had the good sense to go back to their hive. I at once put on supers, and to-night I find the sections packed with bees.—M. Flett.

Denton, Grantham, May 24th.—Really lovely weather for the past fortnight. Bees in all supers with one or two exceptions: they will be ready in a week—never saw bees in such fine trim. Hope to take sections in a week from above date. There are many things I would like to write about of common interest to bee-keepers when time will allow me to do so. We are full of hope and gratitude for such bright prospects for the season of 1890.—F. W. BLANKLEY.

School House, St. Margaret's, Stratton, Swindon, Wilts, May 23rd.—After long silence I am glad to be able to send you the following good account:—Bees have wintered extremely well here. I have not had or heard of a single loss. Stocks are exceedingly strong, and honey is coming in fast from fruit (apple) blossom, now just coming to an end. I heard of the first swarm here on May 13th, and during the past week I have taken some five or six. None of my own have swarmed, but of one I am doubtful. I have three with a second storey added, and intend to work all for extracted this year. This is a grand place for bees, reports to the contrary notwithstanding. I am getting inquiries, and have heard of several intending bee-keepers here who are resolved to stop 'wasting their (flowers') sweetness on the desert air.'—COLTRIP J. G. GILBERT.

Ontario, Canada, May 14th.—We are having very backward weather at present in Ontario. There is little honey being gathered by the bees in this section of the province, and should the weather continue as it has been, colonies will have to be kept alive by feeding.—M. COUSE.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

INQUIRER.—*Chilled Brood.*—No appearance of foul brood in comb. Do all you can to avoid chilled brood.

HORACE.—*Name of Flowering Tree.*—The sprig of blossom sent, so closely resembling hawthorn, is from the white-beam (*Pyrus aria*). It is closely allied to the *Crataegus* (the thorn), and, of course, will yield both pollen and honey.

T. J. LILLEY (Honiton).—The queen sent bears no impress of age at all, but as she was dead and injured when received (the glass lid of box being broken), it is difficult to speak with certainty; we think she is a virgin queen raised early this spring, and not the original one at all, which will account for the drone-eggs.

We must express our thanks to several correspondents for the care shown in packing samples of foul-broody comb in response to the remarks we felt bound to make on p. 241 of *B. J.* A considerable amount of trouble, to say nothing of risk to our own bees, will be spared us if all will do likewise.

THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

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Editorial, Notices, &c.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee Meeting held at 105 Jermyn Street, Tuesday, May 20th. Present: Rev. F. S. Sclater (in the chair), Dr. Bartrum, Rev. J. L. Seager, Captain Campbell, W. Lees McClure, J. Garratt, the Rev. W. E. Burkitt, and Dr. Raynor (ex-officio).

Mr. W. Broughton Carr was approved as the ex-officio representative of the Lancashire and Cheshire Association.

The Finance Committee presented their report, recommending the payment of certain bills, and that the accounts be made up to the 15th of each month instead of the 1st, as formerly. The recommendations of the Finance Committee were approved.

Reports were read from the Chairman (1) in reference to his interview with Sir James Whitehead in respect to the proposal for teaching bee-keeping in connexion with fruit-culture; (2) in reference to the condition of the Library, recommending that a sum not exceeding 5*l.* be voted towards rebinding and repairing the books. Resolved, that the latter report be referred to the Finance Committee for their consideration.

The Secretary was instructed to confer with Mr. Hehner, the Association's analyst, in respect to the pamphlet, *Honey as Food*.

On the motion of Mr. Garratt it was resolved 'To appoint a deputation to seek an interview with the executive of the Bath and West of England Agricultural Society during the Rochester Exhibition, for the purpose of ensuring where possible, in future years, exhibitions of apiarian objects in connexion with their agricultural exhibitions.'

It was resolved the judges appointed for the Rochester Exhibition, together with the Vice-Chairman and Mr. Garratt, be appointed as the deputation.

USEFUL HINTS.

Weather, Reports, &c.—With all the bright sunshine of the past fortnight there has been just that flavouring of east wind which is sufficient to prevent the free secretion of nectar in the acres of bloom everywhere abounding. As we write, however, the wind is veering southward and some rain is expected, after which we may look for the more balmy atmosphere which brings work for the bees and honey into the hives. From some parts come reports of full crates of sections already secured and indoors; but no one, so far as we can gather, within a radius of fifteen miles around St. Paul's, has been equally fortunate—indeed, with the exception of one district in Kent, the counties immediately around the metropolis may be said to have 'missed' the early crop. Eastward, in Norfolk and Suffolk, honey is reported as earlier than it has been for many years, while in Yorkshire, and even so far north as Fifeshire, N.B., bees were at full work in sections soon after the middle of May; and swarming, we are informed, began in Renfrewshire only four days later than the earliest swarm ever known there, which is recorded as having issued on May 16th, 1842. From Ireland (co. Down) a correspondent sends a section from a well-filled crate removed from the hive on May 20th, and he had at same date 100 more well on towards completion. This augurs well for the coming time, when we shall hope that all will have their share of what is going.

Size of Brood Nest.—Some bee-keepers are troubled just now because of their fear that queens will not have sufficient room for ovipositing, the idea being that a brood nest cannot be too much extended at this season if queens are so prolific as to occupy it. In one case just to hand 'the brood nest has sixteen standard frames, nearly all occupied.' This is a great mistake, and will probably be another case of 'those Ligurians, which do nothing but eat and breed,' as a correspondent puts it. Time was when we were exercised in our own mind on this same subject, and it was in this connexion that shallow frames for brood, as well as for surplus chambers, were valued because of the readiness with which by these means the former could be enlarged to just the size required by the season. We have, however, come to the conclusion that a hive of ten standard frames is large enough for all purposes if properly worked, and at a time such as we are now experiencing, when not very much honey is coming in, though bees are plentiful, supers should be on, bees in them, and combs built ready to hold any surplus which may be gathered later without the need for brood cells being occupied with more than a small share of honey. With hives not yet supered, and yet ready for it, a look should be given to the outer combs, and if these are found to be almost free from brood, but full of sealed

honey, uncap the latter and set the two combs in the centre; but if the combs in question are pollen-choked on one side, and faulty (for brood) on the other, remove them altogether and substitute two full sheets of foundation in centre of brood instead. There need be no fear of chilling brood in full hives now.

SUPERING, WHEN AND HOW.—Given a hive full of bees, weather warm, and honey coming in, and the time for supering has arrived; it may also be said that if the above conditions are fulfilled, there should be little trouble in inducing bees to enter supers, yet how often do we hear the complaint, 'My bees won't enter supers.' Many attribute this trouble to the use of excluder zinc between brood and surplus chambers, a belief in which we do not share, because our idea is that, other conditions being favourable, bees will find a place for storing away the surplus income of the hive if they can, and if prepared storage-room is offered they will make small account of the size of the entrance to it so they can get through. We have long looked upon excluder zinc as a *sine quâ non* in surplus storing, and, when arguing in its favour with 'zinc-haters,' have often felt inclined to reply as did an old Scottish friend, who, crossed in argument, 'settled' his opponent by drily observing, 'Weel, ye can just gang tae the deil yer ain gate.'

TREATMENT OF SWARMS.—'Don't neglect your swarms' is a truism bee-keepers should take to heart; unfortunately, however, many appear to consider that bees will only swarm when forage is abundant, and that nothing is required beyond 'hiving' and leaving the bees to look after themselves. But experienced hands know that this view is altogether erroneous, and that it is no uncommon thing for a period of scarcity of follow a day or two after the issue of swarms, so severe as to imperil their very existence. On the other hand, a few pounds of syrup judiciously given will so help a swarm that comb-building goes on and the comb is filled with brood as rapidly as built, so that the bees are compelled to enter supers on the return of favourable weather by reason of the newly built comb being for the most part occupied with brood. The point is to limit the size of the brood chambers to eight or nine frames the first season, and to keep up the comb-building impulse by giving full sheets of foundation in surplus departments. Swarms this year are so early that we should hear of a good ingathering from them.

SPACING FRAMES.—It is not a little perplexing, as well as amusing, to the British bee-keeper who reads American bee literature, to find our brethren across the Atlantic at the present time gravely discussing how to space frames at proper distances apart, in a style analogous to the 'happenings' here of fifteen or more years ago, and going over ground traversed by the grey-headed bee-keeper of to-day in the time of his noviciate, years ago. We read with wonder, bordering on amusement, that from the land of advanced bee-keepers comes a 'new idea' of fixing distances between frames by means of our ancient friend, the wire staple, and it would appear that so well-known a writer on bees as Mrs. L. Harrison has got no further forward than the use of frames spaced by 'resting in notches cut in a wooden support,' and that the only objection to them is that 'the bees glue them fast.' This can hardly be termed 'going ahead' in bee matters, when we look around at the British beehive of to-day, one would think there is some explanation behind, we wot not of, to account for the curiosities of this portion of transatlantic bee management.

ORDERING BEE APPLIANCES.—Some complaints have reached us expressing annoyance because of the delay experienced in receiving goods from manufacturers and dealers in bee supplies. We can readily understand the nervous anxiety with which the 'new hive' is looked for when the swarm is daily expected, or the inclination to use bad language when the bee-keeper arrives home in the evening and finds his sections and foundations are 'not come.' But the troubles of the dealer must not be quite overlooked, and we would say a much-needed word on his behalf. Sorely pressed with orders, while each customer—apparently supposing that *his* requirements are the only job on hand—gets impatient if goods do not reach him in two or three days, the much-abused dealer is vainly endeavouring to get orders filled in time. For months he had been quiet enough, and had time to attend to any one; but customers will not order goods before actually wanted, so that business comes with a rush, and orders can only be executed in rotation. Buyers may, however, render great assistance by themselves attending to a few points, such as (1) (or perhaps we ought to say A 1) sending cash with order; (2) enclosing full name and address, with means of conveyance—*i.e.*, rail or parcels post, name of station, whether by goods or passenger train; (3) not to write long letters on bee management, requiring time for reply, but state briefly the articles wanted; (4) not to order special goods out of the ordinary line at a busy time. These are a few matters which have suggested themselves to us as 'Useful Hints,' picked up on a recent visit to a large manufacturer, whom we found labouring to overcome his difficulties and troubles, endeavouring to please all, and for whom not too much consideration was shown by some customers.

AT LAST!

They say, 'All things come to those who wait,' and probably one of the longest waits on record is that of Mr. E. J. Bridge, of Maldon, who, we learn, has just had delivered to him through the post a copy of the *British Bee Journal*, dated November 1st, 1883. The paper was accompanied by a letter from the postal authorities in London, explaining that in the course of alterations now taking place in one of the post offices the book packet in question was discovered, after having been mislaid nearly seven years.

ABOUT BEE-KEEPING.—I.

By the Wife of a Bee-keeper.

My Dear M.,—You say you should like to keep bees! Living in the country as you do, and possessing a garden—why should you not? I am sure you will find it a most interesting occupation, in addition to its being a profitable one.

It has often been a source of wonder to me that so few bees are kept, considering the return they give for the outlay of time and money; and I sometimes think how strange it is that country women, from whom we can buy any kind of farm or garden produce at market on Saturdays, from butter and eggs to the humble bunch of nettles for beer or bit of groundsel for the bird, should never have honey or wax to sell. I only once remember seeing honey-comb at the weekly market. It was brought by a farmer's wife, who, when I saw her, had sold out, with the exception of a small piece of very dark, uninviting-looking comb for which she wanted 1*s.* 6*d.* per pound. It was skep honey, and in all likelihood the bees had been destroyed to obtain it.

I am glad to say that since that time, now many years ago, bees are less frequently 'brimstoned' or destroyed for their produce than they were. Exhibitions of bees and honey, with manipulations in the bee-tent, have taught many that, like poultry, pigs, or any other stock on a farm, bees will *pay* when properly managed—that it is worth while taking a little trouble with them, instead of following the old plan of letting them take care of themselves, and eventually destroying what would probably be a good stock the following year, for the sake of perhaps half-a-dozen pounds of honey.

I can well understand farmers, farm labourers, or indeed any working men, not being able to look after bees themselves; they are away from home all day, and their working hours are usually long. But why cannot their wives and daughters be the bee-keepers? I fancy I hear some one say, 'Oh, I have too much to do!' Well, perhaps, that is so. But many women do a great deal of work other than housework, which takes much more time, and on the whole is much less profitable. In the villages round about here all the women work hard. They keep pigs, some of them fowls; they sell flowers and fruit from their gardens, and in the season mushrooms and blackberries, at the market; besides, they are nearly all laundresses. Pig-keeping seems to be the most popular, and I might say favourite method of adding to the income of rural households, and I would just say a few words by way of comparing it with bee-keeping, for the same laudable object.

I am sure bees will pay better than pigs, while requiring far less attention. A small store pig will cost 1*l.*, which is the highest price given for a swarm of bees: they can often be had for 10*s.* The pig requires feeding twice daily, and its food has to be cooked and prepared for it. Small carts containing tubs pass here, to and from the town, and I know that it means the collecting of the pigs' food, which may not cost much in money, but costs time. Then, before the pig is fattened, meal must be bought; and when killed and sold, a portion of the sum realised must be set aside wherewith to replace it. Now for the bees. The swarm will require a hive, but it need not be an expensive one; a flat-topped straw skep, costing about 2*s*, will do very well to begin with. In an ordinary season it will, if fed a little while the bees are filling the hives with combs, yield some surplus honey, and if the season be a good one it will do this and more without any feeding at all. After the honey is taken, the bees can have sufficient food given them in two or three days to last all winter, and supposing the stock to need liberal feeding, the cost will not exceed 2*s.* 6*d.* For five months—in autumn, winter, and spring—it can be left entirely alone: but in spring a little more feeding is generally requisite, and when in summer boxes to store honey in have been put on the hive, filled, and taken off again, the bees are still there, and do not require, like the pig, to have a portion of the profit expended in renewing the stock.

Talking to a neighbour about bees, she told me she 'had a swarm once, but it died'—swarms do die, and so do pigs, if they are not properly managed. The latter loudly draws attention to its wants if neglected, but the poor bees may starve to death while the sun shines, if the careless or ignorant bee-keeper fails to take note that the blossoms are honeyless, as they sometimes are; and so the swarm dies through lack of knowledge in the bee-keeper.

I feel quite sure that if country women knew how to manage bees as well as they do pigs, more hives would be seen in cottage gardens than there are to-day. The difficulty is, however, how the country women are to learn the principles of bee management; they are always busy, study is not in their line, even if they had time to study in—and lectures delivered to their husbands will not help them very much. Something might be done if lessons on bee-management were given to girls in village schools, for if the girls knew something of bees, and could help, the mothers would have a better chance of mastering the subject. Lady bee-keepers, too, might help the hard-working country woman to understand a few of the main principles of bee-keeping, such as when to feed her bees, put her supers on, take them off, watch for swarms, &c., just as they assist at mothers' meetings, by visiting, or other methods of aiding those less fortunate than themselves. That honey will sell as readily as other produce is evident. Not long ago, at a market in the north, my husband saw sections of honey weighing one pound sold by a farmer's wife at 1*s.* 3*d.* each, while she was only asking 1*s.* per pound for her fresh butter.

There are some women, too, who, while willing enough to keep bees, are unable (or perhaps disinclined) to stand in the market offering their produce for sale. To these I can say from experience that a stock of nice extracted honey

for home use is most valuable. It saves butter, children are fond of it, and it is very good for them, both as an article of food and as a cure for their colds. I try never to be without a few pounds in store; but however much I begin the winter with, it is all gone before the summer comes again. People come for it, and many times the demand has been far greater than I could supply. It has not seldom been a touching experience of my own, when working men have walked many miles to my home for 'a bit of pure honey' for a sick child.

It is by no means necessary to possess a large garden in order to keep bees. Find a warm, sheltered corner for your hive, not too near the road, so that passers-by may not be mistaken for enemies. Have it so placed that the bees can fly into the open country direct, facing south or south-east, if possible; but should this not be practicable, the entrance must not be placed 'front on' to a footpath, unless the hive stands some distance back. I have known beehives to stand within four yards of a footpath, without annoyance to any one; but it is not well to run unnecessary risks, and we should do what is in our power to lessen the possibility of any one being stung. People are not always judicious; some are nervous, and, if they hear a bee buzzing near them, at once conclude that it means to sting; then they begin to strike at it, which of course brings about the mischief they have been endeavouring to avoid.

The buzzing of a bee near its hive is its note of warning for intruders to depart, which they should do quietly and without hurry. Old bee-keepers readily detect the buzz of the bee whose note means mischief; it is a short, sharp, angry note, quite unlike the ordinary pleasant hum of the bee at work. This angry sound is only heard when the bees have been irritated, either by their hive being interfered with, or by intruders standing in the way when honey is coming in fast, and no time must be wasted. Away from their homes and at work among the flowers you need never fear the sting of a bee—practically it is as harmless as a butterfly. Just in the same way you need not be alarmed when a bee enters your house in quest of food (as many are); treat it as you would a fly, and it will be quite as harmless. What a commotion I have seen in a room, not among children only, but adults, when a poor bee or a wasp has entered on an exploring expedition, until the intruder has been got rid of!

I have stood within a yard of a hive (not in front, of course), and watched the industrious little creatures for an hour at a time without being noticed at all, and most interesting it was to observe their labours. The hive in question was a straw skep with an unusually large entrance; and as it was intended later on to transfer to a frame hive, no trouble was taken to make the entrance more suitable to their wants. The bees worked away for some days, carrying in honey and pollen so earnestly and incessantly that many of the little tired creatures had to rest, panting for breath, as bees do when fatigued, before running into the hive. At last it was observed that something unusual was going on just inside the entrance, and in a few days a dark-looking substance in the form of a pyramid was seen right in the centre of the doorway. When the bees were eventually transferred to the frame hive it was found that their object in throwing up the curious barrier was to reduce the entrance to normal dimensions by building archways of propolis, a dark, gluey substance gathered from trees, and used by the bees for filling up crevices, and making all tight and snug. Their instinct told them that a small doorway was more easily guarded than a large one, and before filling their hive with the tempting food, they were doing their best to provide the means of protecting it.—*Co-operative News.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements.*)

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

FIXING FOUNDATION IN FRAMES.

[197.] I beg to send, for insertion in the *Journal*, a description of a method of fixing foundation in frames, which, while not new in principle, is new in its application. The advantages offered by the fixers which I am about to describe are cheapness, durability, simplicity, and efficiency. Their use also does away with the necessity for a split top bar.

The fixers are made from strips of tin five-sixteenths of an inch wide, the length of strips being proportionate to size of frame. For shallow frames five and a half inches deep, the strips should be eight inches long; for standard frames eleven inches. The teeth may be cut three-quarters of an inch apart, the first tooth being two and a half inches from top end. Fig. 1 shows the plan of cutting the teeth; the scale is one quarter the actual size. The strip should be cut along the thick lines with a strong pair of scissors—I use an old pair of clipping scissors. The teeth are then turned at right angles to the strip, and the points snipped off to prevent pricking one's fingers. Fig. 2 shows a side view of fixer. Fig. 3 shows fixer when on frame. The bends should be made in order, A B C D E, beginning with A. When used *with* split top bar, insert foundation in saw-cut and then place fixers and press foundation on to the teeth. When used *without* split top bar, place fixers on frame *first*, then lay foundation on points

and press gently. To remove them, lever up, as shown in Figs. 4 and 5. A gentle rocking

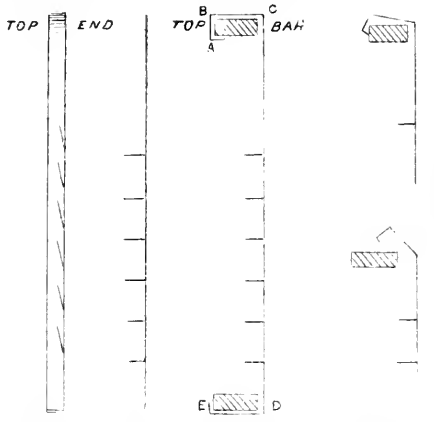


Fig. 1. Fig. 2. Fig. 3. Figs. 4 & 5.

motion will then easily detach them from drawn-out comb, which will not be damaged to any appreciable extent if the operation is carefully done.

These fixers entirely prevent sagging of foundation, and ensure a straight comb. The part of comb immediately under each fixer will not be fully drawn out till the fixer has been removed. These fixers are not protected in any way, and any one can cut them out of an old clean tin. They are thus easily and cheaply made, and I hope the idea may be of use to readers of the *Journal*. I do *not* make them for sale, nor can I undertake to send specimens. I call them the 'Facile Foundation Fixers,' and, as will be seen, they are a modification of the Cheshire rakes.—ALADDIN, *Southfleet, Kent.*

BACILLUS MINOR.

[198.] In preparing my bees last autumn for the winter, I discovered that three lots were suffering from foul brood. It was late in the season for doing anything, so I camphored them and hoped for the best. This spring a careful examination showed all sixteen stocks to be more or less diseased—mostly in a mild form, I hope. I broke up the five worst lots, and destroyed all the brood, combs, and frames. The bees I united in two lots upon clean empty combs. For years past I have constantly used salicylic acid when feeding them, and have hitherto been a successful bee-keeper. The bees now refuse medicated syrup (either salicylic acid or phenol), and those which were worst were the first to refuse it; even those put on empty combs will not take a drop more than necessity compels them to, and now honey is coming in freely. Will you kindly advise me how to proceed this summer? My hives are on the 'combination' principle, upon very low stands, with fixed floor-boards. I am keeping camphor in all my remaining thirteen stocks. Also answers to the following queries will much oblige: — 1. Why should the camphor be wrapped up in rag? 2. Which plan is most likely to facilitate a cure, to work for honey or swarms? The bees are strong at present. 3. What is the formic-acid treatment? 4. Is phenol considered a stronger disinfectant than carbolic acid?—H. T. S., *Pevensey.*

[On the general subject of your communication it may be said that with care and constant watchfulness you may overcome the trouble complained of. If you can but realise how easily the mischief becomes aggravated by carelessness or neglect, and are willing to take every possible precaution, such as medicating all food given, breaking up any stock in which more than a few foul-broody cells are seen, never allowing weak colonies to drag on—half alive, half dead—but uniting before they reach that condition, you may manage to wear the disease out. Replying to your other questions *seriatim*:—1. It is not absolutely necessary to wrap the camphor in anything, but for obvious reasons it is better to do so. 2. For swarms, decidedly. By giving your swarms clean hives, and allowing them to build new combs, you lessen the chances of the disease making headway; for it is evident your bees are not afflicted with foul brood in its malignant form, or they would never become 'strong,' much less would they be inclined to swarm at all. 3. Briefly, the formic-acid treatment may be stated as pouring the acid into one side of a comb, and hanging it as far as possible from the entrance, with the acid-filled cells next the hive-side. In justice to Mr. Sproule's method, however, you should read what has appeared in print on it before trying it. Mr. Sproule has kindly offered to correspond with any one on the subject, and give all the assistance he can. 4. Phenol *is* carbolic acid in its purest form.—ED.]

TURPENTINE FOR FOUL BROOD.

[199.] Has any one tried turpentine as a remedy for foul brood? I have an idea that it may be of some use, but have not had an opportunity to give it a thorough trial. If some one who has an undoubtedly diseased stock would try feeding with fifteen drops of spirit of turpentine to the quarter-pint of syrup, and pouring a little turpentine on the bottom of the hive outside, but close to the division-boards, so that it may soak under them, every day or two, thus keeping the brood nest slightly smelling of turpentine, and report on the effect, it can do no harm and may lead to good.

I make the above suggestion with great diffidence as I am only an amateur bee-keeper on a small scale; but I feel quite sure that the only way of coping with foul brood, now that bees can be sent so easily from one part of the world almost to another, is by discovering some simple and cheap remedy, which must be in the hands of each individual bee-keeper. I have tried phenol as a cure without success.—W. M., *Devon.*

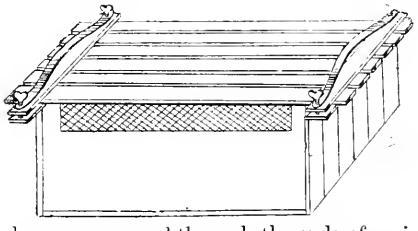
[Spirit of turpentine, in our opinion, will not do as an article of medical diet for bees, and the quantity you name (fifteen drops to the quarter-pint of syrup) is much in excess; it would be a lively dose for the kidneys of a man. Your suggestion is a very valuable one, because of its simplicity and likely success when the stuff is poured

at the back of dummy-board. It often happens that the most effective remedies are the simplest; and we would advise those who intend to try this one to use pure terebine (highly rectified spirit of turpentine), which has been suggested in our columns by 'X-Tractor' as a remedy for foul brood. Nothing known (which can be used) will kill the spores of bacilli, but the strongly ozonised atmosphere produced by the vapour of terebine will kill the bacilli themselves, we think, and thus prevent the spread of foul brood in one way. *Verb. sap.* to householders.—Ed.]

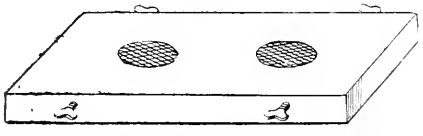
NEW MODE OF HIVING SWARMS.

[200.] A year or two ago my swarms gave me a deal of trouble by rising again when turned out on a sheet or on top of the frames; or even if they did eventually go in they took so long a time that I tried the following experiment, and have been so pleased with results that I never hive a swarm now without it:—I got a thin box, and made it right to hold six frames, with bee-entrance at one end, but about 4 in. deeper than frames required. I had two clamps made

at our smith's, as shown in sketch, to clamp six frames together, which they do to perfection, providing they have shoulders or pins to keep them apart, holding the frames as firm and rigid as if they were one piece. The thumbscrews



of clamps are passed through the ends of a piece of leather strapping a little longer than the clamps, thus forming convenient handles for lifting by, as shown. The lid has deep plinths, and is held firmly to the box by four thumbscrews passing through the plinths into sides of box, this in its turn holding the whole set of frames quite firm, which allows me to use the



box bottom upwards, exactly as one would a skep, and hive the bees *direct* upon the frames they are to occupy, or if the box (of course bottomless) is propped above a swarm, it is astonishing how quickly they will take possession and cluster among the frames. As soon as they have had a minute or so to cluster, which they will generally do in less time than it takes me to remove the old stock and place a hive ready for them, I stand the box in its own bottom board, which has plinths all round, with bee-entrance at one end. I carry them at once to the stand they are to occupy (often having to cross a low wall or two from my neighbour's garden): being entirely enclosed in the box, it is quite equal to the occasion. Having brought the swarm to their stand, it only remains to unscrew the lid of the box and lift out the frames with adhering bees by the leather straps into their hive, when scarcely a bee will take wing. Indeed, they hardly seem aware of the change, for, on lifting them out, the full-sized quilt used above frames in the box drops down on each side of the swarm, so that very little sun reaches the bees. As soon as lifted into their hive I at once take one thumbscrew out of each clamp, when the clamps can be drawn from beneath the frames, and the job is done.

The whole operation takes but a few minutes, and several neighbours can testify that I have had the swarm quietly settled on the spot they issued from in less than fifteen minutes. I keep two sets of clamps, so as always to keep one set filled with frames in readiness. Starters of foundation *only* must be used, and they need to be fixed tightly in centre of frames. Possibly some of your readers might care to try the plan, as it is inexpensive.—G. W. Hole, *Patcham, Sussex.*

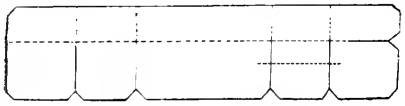
FOUL BROOD.

[201.] Your remarks upon foul brood this week are timely. It is a most serious question to bee-keepers—one and all—even to those who may feel able to cope with it successfully. Renewals of it are calculated to wear out the patience and energy even of the most enthusiastic, and, unlike measles, having got over it once seems to be no protection whatever against future attacks. The subject needs well ventilating. Could not some selected queries be set on foot among the experienced? For instance: What do you consider the best preventative of foul brood? How may it most easily be detected in its first stage? What do you consider the most suitable treatment for amateurs and cottagers to adopt? And another, which sooner or later must come to the front, viz., At what stage of the disease ought remedial measures to cease, and the stamping-out process invariably to begin? Well-considered answers from experienced men to these and other similar queries on this subject would be valuable. As you point out, it is folly either to ignore or evade this question. The disease has made its mark right through the land; it is scoring daily, it is among us, and looks as if it means to stay with us if possible. Can we, as bee-keepers, afford to let it run its course? I cannot say much about foul brood from personal experience, but, alas! my experience has commenced. The invariable use of salicylic acid in all their syrup for several years past has not preserved my bees from infection,

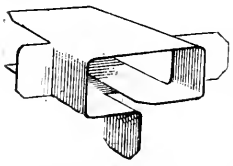
In my opinion, it is worse than useless to go on multiplying the number of bee-keepers before we have learned either how to prevent or to readily cure foul brood. It is but supplying more victims for its capacious and insatiable maw.—H. T. S., *Westham, Sussex.*

HOME-MADE METAL ENDS.

[202.] On looking over the *Journal* for May 8th, I noticed a description of a new metal end by Mr. Carmichael, of Melrose, which is very



good. I enclose a sample of the sort I use, and I think they are as easily made and stronger than the one depicted on page 220. You will see



they can be made to suit outside frames the proper distance from side of hive, and they can be cut with an ordinary pair of scissors. If, sir, you think they are worth your consideration, perhaps you may mention them in the *British Bee Journal*, as some may, like myself, be glad to make their own and save a penny.—D. TAIT, *Coldale, Haddington, N.B.*

STRAY SHOTS FROM JERSEY.

[203.] The weather, with the exception of May 4th and 9th (which were cold and rainy), has been simply lovely, dating from April 28th. April as a whole was detestable—cold and incessant rain, with no ray of sunshine. Drones were flying the first days of April. Some of my stocks were simply roaring over. The supers are on (ten shallow-framed), excluders between, and filling fast. I presume apples and raspberries furnish the nectar. Pollen seems to come in by the pound. I am sorry to say one of my strongest stocks is in a hive with only a nine-inch entrance instead of fourteen inches. At the rate they work, an entrance at almost every point of the compass would seem hardly big enough to prevent crowding. However, I intend remedying that in the fall. The advantage is quite noticeable, as there are two very strong hives side by side, the one with the nine-inch, and the other with the fourteen-inch entrance, and in the latter the workers are not impeded in the least.

I wonder some dealer in appliances here in England has not on his list for sale Swiss foundation makers, or an improvement on them. The one I saw, costing about a sovereign, I believe, is very simple, and on the principle of a bullet mould; that is to say, each side of a sheet of (standard-size) *thick* foundation, *natural-based*, is accurately defined on two sheets of copper, which are joined together like a book by an unhingeable hinge. I believe both sides have to be painted with oil. The wax is melted over a stove and poured down one corner. Running over the plates it fills the whole of the hollows, and the whole is immersed in a pan of water to cool. The sheet can then be peeled off from the opened mould. You will observe there is no extra plant required beyond the pan to melt the wax in, and there is little or no mess. Should you break or spoil any sheets they can be remade. The cappings, or melted combs, can be remade at once without sending away. Of course, thin foundation cannot be made with this. I believe six or seven sheets go to the pound. A little rim of metal, of course, goes round the whole to keep the wax from running over, and is affixed to the bottom plate. The above is quite within reach of an amateur.—C. G. V.

AIDING ARTISAN BEE-KEEPERS.

[204.] In your issue of the 15th (182) I notice a very good suggestion in respect to aiding artisan bee-keepers, and which I think is worthy of consideration not only by the B.B.K.A. but by county and district associations. I am very pleased to be able to inform you that the Gloucester Bee-keepers' Association (although called 'sleepy Gloucester') are prepared to lend hives, swarms of bees, and appliances, to poor cottagers, with a view of promoting bee-keeping amongst the poorer classes, not all over the county, but to cottagers living in or near Gloucester; they will then become members of the Association, and pay for their bees, &c., by easy instalments. I hope other associations will see their way clear to help farm labourers and poor cottagers in getting hives, bees, &c., which without some help they may never be able to to get.—H CANADINE.

[Among the advantages of membership enjoyed by members of the Association referred to, we cull the following as the one alluded to by our correspondent:—'The Association, with the view of promoting bee-keeping amongst cottagers, is prepared to lend hives and swarms of bees to those who are desirous of starting who are not in a position to purchase them at the start. Any cottager living in or near Gloucester who wishes to avail himself of the foregoing is requested to communicate with the Secretary, who will acquaint him with the necessary conditions and make arrangements.'—ED.]

PUNIC BEES.

[205.] Judging by the remarks made about Punic bees (*Apis Niger*) by parties ordering queens—one even going so far as to suppose they are a variety of Carniolans—I think it would be acceptable to just say a few words about them. In the first place, they are *black* bees. British bees are oftener than not called 'Blacks,' though they are by no means *black;* but Punic bees are a real ebony black, and might be fairly called the plainest-looking bees known. They come from North Africa, close on the borders of the great Sahara desert, where frost and snow are never known; yet, notwithstand-

ing this, they are the hardiest bees I have ever seen, being quite equal to the humble-bees, working always when these are out. They can safely take a fly with snow on the ground and the thermometer standing two degrees below freezing; nor will they fly into the snow, like other races. They begin work before sunrise, and work in full blast on days when no other race will leave their hives. In 1888, while I had to feed other kinds all summer, these got more than a living, and actually had stored enough for winter—quite a contrast to the empty combs of the others. In a fair season, or with feeding in a bad one, a strong stock can be divided into twenty nuclei, every one of which will build up into a ten-frame stock in time for winter. They excel the Carniolans for tameness, except when they have the swarming fever on; and, in striking contrast to them, they collect a great deal of propolis—indeed, when natural supplies of this substance fail, they will use coal-tar, pitch, or anything else that is sticky. They do not rob, and can consume any lump sugar in the market apparently as readily as soft candy; no matter how dry or large the crystals, they will soon remove a sugar-loaf left under a shed. To sum up, they are the best bees for building up, for comb honey, for extracted honey, and for requiring but little trouble in managing. At first I was quite prejudiced against them, but four years' experience has removed all that, and now they will comprise the bulk of my apiary until I can find a better bee.—A Hallamshire Bee-keeper.

BEE-PLANTS.

[206.] I should like to draw attention to the Siberian squill (*Scilla Siberica*) as a bee-plant. I have good patches of it, and besides being one of the prettiest flowers of early spring, my bees work it well whenever they get the opportunity. The marsh marigold (*Caltha palustris*) is also a capital flower. There are large breadths of it close at hand, and the bees get large quantities of pollen and no doubt some honey from them.

Contrary to the experience of some, I find that my bees are very fond of the American balsam; it makes a huge bush with me and is one mass of blossom. Thousands of seedlings are coming up, and I shall be pleased to forward a few plants to any one sending me an addressed label and two stamps. I will also enclose seed of the Chapman honey-plant (*Echinops Sphærocephalus*). This is very much liked by the bees.—H. J. Sands, *Harborne, Birmingham.*

RE-QUEENING.

[207.] You advised me lately to re-queen for a possible case of *Bacillus Gaytoni*. I did so yesterday, and had the deposed queen caged in order to send you for inspection, but unfortunately in changing her from one box to another I nipped her to death this morning. Nevertheless, I enclose her in case she may arrive in a condition for examination. My plan for re-queening was to invert a full skep and fix it underneath the bar-frame hive, whence I hope to remove it in twenty-one days. Meanwhile, I shall examine. I saw no *shiny* bees in the hive yesterday, but found hundreds dead on floor-board—too many to be carried out. Now the dead can fall down into skep through the hole (made for a basin) in the *temporary* floor-board. The brood combs showed no sign of disease; but I shall watch, and hope to examine in a few days.—J. Digby Russell, *Kinnetty Rectory, Parsonstown.*

[The queen was quite unfit for microscopical examination, being stiff and hard.—Ed.]

CO-OPERATION AMONG BEES.

[208.] Will any reader give me advice, if it is possible, to work two stocks of bees in one hive (with division-board between), for them to work in one super?—as I should like to try it. I took the first crate of sections off one of my stocks on the 24th of May, well filled, thanks to the valuable information from 'Useful Hints' in *B. J.* I have recommended the *Journal* to three or four people, and they are greatly pleased with the information you give in it.—T. R., *Yorkshire, May 26th*, 1890.

AN EARLY SWARM IN SCOTLAND.

[209.] At Sandyford, Renfrewshire, on Tuesday, the 20th inst., a hive of bees on shallow frames cast a fine swarm, weighing about 3½ lbs. This is eighteen days earlier than last year, and only four days later than the earliest, which was on the 16th May, 1842.

IMPROVED 'LITTLE WONDER' EXTRACTOR.

[210.] I have just started bee-keeping, and have not a lot of money at my command, so I set to work and made my own hive, and if successful shall go in for it on a larger scale next year. Now, I see on page 233 of the *Journal* (which I take in) a nice little extractor with a counterbalance weight: you will do me a great favour if you will give me the proportions of said extractor—'Little Wonder'—as I feel sure I can make one. The frames I have are standard size.—F. E. P., *Buckland, Portsmouth.*

[The illustration itself will give a good idea of the 'proportions' of most of the parts. The 'shaft' is 46 in. long; *outside* of cage 9 in. from *inside* of shaft; cage, 18 in. deep over all. See one, if possible, before making.—Ed.]

BEE SHOWS TO COME.

Bees, Hives, Honey, etc.

June 5.—Bath and West of England Agricultural Society at Rochester. Entries closed May 24th. Secretary B.B.K.A., J. Huckle, Kings Langley.

June 11, 12.—Essex B.K.A., in connexion with the Essex Agricultural Society's Show at Chelmsford. Hon. Secretary E.B.K.A., F. H. Meggy, Chelmsford.

BEES IN MALTA.

[211.] Regarding my former letter (Query No. 49, May 15th), nothing came in the hive; the fertile worker remained in possession. The cell I cut out and put into incubator did hatch, but I can't call the insect a queen; it was a small and miserable article, with very little life. However, I introduced it to a nucleus, and up to this have had no result, except that when I gave them some queen-cells, a fortnight later, they destroyed them. I did this to see what they would do, as I couldn't find any queen. To-day (May 19th) I examined, and I fancy they have a fertile worker. I can't find any queen, yet there are eggs. That is one of the bad points of these natives and Cyprians, the proneness to establish fertile workers and stick to them. We have had a very bad season indeed. No honey, no swarms, and great trouble and disappointment in getting queens mated, owing to the incessant high winds and cold. Now the hot and dry months begin, and it is all over.—MALTA.

[Your experience, as we said before, reveals a remarkable condition of things, quite out of harmony with anything we have met with. You will, at any rate, soon find out whether the hive contains a fertile queen—as we think it does—when brood is sealed. The very few fertile workers we have been troubled with have never laid 'several combsful of eggs, two or three in every cell,' as yours did, but just a few in scattered cells here and there, two or three in a cell. When queen-cells are built on these, small drones usually result, if anything at all, but many such cells are abortive. We should give up Cyprians after an experience such as is related, and we would also advise as little manipulation as possible, for there can be no doubt that undue interference and over-handling are responsible for many of the extraordinary vagaries in which bees indulge at times, the 'why and wherefore' of which are so difficult to account for. In our practice we should never dream of examining a swarm two days after it was hived to find the queen, and we think, and hope, your bees will yield more satisfactory results if a partial let-alone method were adopted. The queen-cell sent is of the usual abnormal form in which they are seen when built on the eggs of fertile workers.—ED.]

Queries and Replies.

[70.] *Carniolan Bees and Honey Gathering.*—Will you kindly say if Carniolans are supposed to be good honey-gatherers? I ask the question because I have just had a large swarm from my stock of these bees, and although they have had a twelve-framed hive and a crate of sections since the latter end of first week of May, yet there is no surplus stored, only a little fresh comb made in one or two of the sections. I should not care to retain them if they are simply breeders—increase of stocks not being wanted. This swarm settled on a small pear-tree in a neighbour's garden, and formed itself into two distinct cones, so that only the larger portion could be obtained at the first shake of bough into skep, and the rest, after re-settling, I took in a pail, putting them with the others. In the evening I returned all to the parent hive, giving it an extra storey of shallow frames and the crate of sections. No work was done in either of these during the night. To prevent them issuing again, I have put a drone-trap in front of hive for a few days to come. Before replacing the swarm I cut out all the queen-cells from each frame: about a dozen of these in various positions on the frames. To re-hive, I followed the directions given in 'Useful Hints' of last week's *Journal*, and found it answered admirably, there being no trouble in this part of the operations. Do you consider I acted correctly in returning the swarm, and will they now set to work? I ought to say this is my first attempt at handling swarms—never saw one taken before. I had to do all myself, single-handed.—J. H. N.

REPLY.—Carniolans have the character of being good honey-gatherers, but our personal experience of them is not sufficiently extended to warrant us in saying much for or against, and we are awaiting this season's experience before deciding to keep them or return to our preference for the old black bee of this country. They certainly do require extra precaution to prevent swarming. It is yet a little too early to expect much surplus storing, except in very favoured localities. We advise removal of drone-trap at once! If no increase is desired, your best course, under the circumstances, will be to clip the queen's wing, removing nearly the whole of one wing. Place a good-sized box below hive entrance to catch her as she falls to the ground on attempting to fly. You will soon find her on the ground or in the box, surrounded by a small knot of bees, when she may be returned to the hive.

[71.] I have just begun to take the *B. B. Journal* and *Bee-keepers' Record*, and I am delighted with them. Would you kindly explain the following query in *B. B. Journal*? I have a strong stock of bees. The ten frames are choke-full, so I put on a crate of sections on the 22nd, which the bees took possession of next day. I noticed, a day or two before I put on sections, that when bees alighted on entrance-board they were seized, or seemed to be seized, by the other bees, and licked all over, and twisted about. They did not fight, as the bees in a little time entered the hive. Since I put on the sections I see stranger bees, or what I take to be stranger bees, going into the hive and coming out carrying away the honey, and meeting with no opposition from those in the hive. I caught several coming out heavily laden with honey. At the same time those belonging to the hive are carrying in great quantities of pollen, &c. Those I think robbers go in and out in a most unconcerned manner, and are in no hurry to fly away. Early in the morning and at night, when no work is going on, the bees in the hive seem to be quite on the alert. I have

now made the entrance quite narrow, but the same thing goes on.—FIFESHIRE, *26th May.*

REPLY.—There is no need for any alarm or uneasiness; you will find all go on right in a short time.

[72.] *Foundation in Sections.*—Miss M. Bittleston will be glad to know in the *B. B. J.* whether she is right in filling sections with comb foundation, or whether the sections, when filled with honey, will be inferior to those in which the bees have built the comb without help. She uses Neighbour's thin foundation, but last year only gave starters of it.—*Heathlands, Weybridge.*

REPLY.—The usual course is to give full full sheets of foundation in sections. There is no inferiority in the honey, and unless the whole of the comb be eaten (midrib and all) with the honey, no disadvantage is found.

[73.] *A Beginner's Queries.* — A fortnight ago I purchased a stock of bees in a bar-frame hive, and as I am quite a novice in the art perhaps you would answer a few questions, so that I shall not go astray at once. I have commenced by taking the *B. B. J.* and the *Record*, so that possibly you will answer my queries either in one journal or the other—the former for choice. 1. I am still feeding from the bottle feeder. and it is placed at the *two*-hole opening. Is this right, and how long must I continue it? The bees are on *eight* frames, but they do not seem *all* full. When must I put more frames in at the back? 2. What appliances should I get besides a veil? 3. The bees are busy taking in yellow material on their legs. I presume this is pollen. They are also taking a greyish substance. What is this? 4. I notice on removing part of the quilt that the bees have joined in places the division board at the back to the comb next to it, and if I were to take the dummy board out it would pull the frame with it. How must I act so as not to disturb the frame? 5. When must I put the super on? 6. I notice some of the bees are much lighter in colour than the others, which have black bodies. Are these the young bees?—JOHN GREENE, *Shifnal, Shropshire.*

REPLY.—1. Keep the feeder going till the weather, the busy state of the hive, and the forage around indicate that honey is being freely gathered, when feeding may cease. If you have the frames either ready combed, or fitted with full sheets of comb foundation, you may give two more in a few days, making up the number in the brood chamber to ten, which will be sufficient. 2. Leaving out such things as an extra hive for possible swarm, a skep for hiving in, stock of sections, and some comb foundation, which, if you have not already got, may be required, the actual implements needed in addition to those you have, are a smoker and gloves (dispense with the latter if you can). 3. Both substances are pollen gathered from different flowers. 4. Slip a knife between division board and brace combs, and cut away the projecting portions of the latter; then increase the distance between comb and division board by a quarter of an inch. 5. When hive is full of bees and honey coming in fast, say about the first or second week in June. 6. Yes.

[74.] *County Associations — Privileges of Membership.*—Will you kindly say if members of county associations are entitled to the same privileges as members of the B. B. K. A.? If they are, would you also let me know where the library is?—G. MASTER, *Gray's Inn Road, W.C.*

REPLY.—Membership of a county association does not include the use of the library belonging to the B. B. K. A., though it does that of the county association to which you may belong. The B. B. K. A. library is located at the office of the *British Bee Journal*, 17 King William Street, Strand.

[75]. *Swarm returning to Hive.* — Can you give me any explanation of the following circumstance? One of my six hives has a young and prolific queen, and is very strong. As it and two others are slightly affected with foul brood, I am anxious they should swarm. The three affected stocks and one other were supered with sections on the 13th May; on the 16th, the one I first mentioned swarmed and was hived, but being left in the skep for half-an-hour, it returned to the hive it came from; on the 23rd it did the same thing. Can anything be done next time they swarm to prevent them doing the same thing again, by giving them a frame of brood with eggs, or a frame of brood and a new queen? I forgot to mention that on the 12th, a dead queen was picked up outside the hive.—E. M., *Harleston, Norfolk.*

REPLY.—If the queen is secured and hived with the swarm, there is no need for any precautions, such as giving a frame of brood, to induce the bees to remain in the hive.

[76.] *Preventing Swarming.* — What is the simplest and most effectual way of preventing swarming? My stock consists of three bar-frame hives, which I wish to work for honey only. I have put supers on two hives, in the hope of thereby preventing swarming in the meantime. Would you recommend 'the non-swarming arrangement and drone trap?' I may say that I tried supering last season to stop swarming, but without success.—G., *Rossshire, N.B.*

REPLY.—There is no 'simple and effective way of preventing swarming.' All that can be done is to minimise it, and to this end nothing is more effectual than giving timely room, shade, and ventilation. New methods are this year being tried, but until reports come in regarding them we cannot advise anything beyond what is stated above. The 'arrangement' referred to must be the 'self-hiving arrangement,' and is used for an altogether different purpose than that of preventing swarms.

[77.] *Foul Brood*—May I ask you to be good enough to enlighten me in this case? In examining a weak stock of hybrid Ligurians

belonging to a friend to-day, I found three combs in a similar state to the piece enclosed. Is this foul brood? I have never seen any decided case, so am uncertain. In the lower part of each comb were eggs and grubs in all stages, apparently perfectly healthy, but in many of the cells were two or three eggs together. The queen was to all appearances perfectly right.—J. O. Wood, *Salop.*

Reply.—A bad case of foul brood. The bees, frames, and combs should at once be destroyed, and the hive moved away from proximity to the healthy bees. Cleanse and thoroughly disinfect before using again.

[78.] *Caging Queens.*—1. Can a queen-bee be kept caged in hive when there is another queen-bee at liberty? 2. There is a great difference in thickness of wired foundation and the ordinary foundation. Why is this? Do the bees draw the wax out of the foundation, or simply add wax in forming the cells, using the wax given as foundation only?—E. Reynard.

Reply.—1. Yes for a time. 2. 'Wired foundation' is made thin because it is supposed that when wire is embedded in the wax when making, it forms a sufficient support without being thick. Bees draw out the wax more or less in forming cells when foundation has a thick side wall, as well as thinning down the 'midrib' at times; but if honey is coming in fast the bees often leave the foundation as they find it, and build their combs on the wax given them.

[79.] *Bee-flowers.*—I should be much obliged by your informing me, through the medium of your valuable paper, whether the following plants, *Limnanthes Douglasii* and *Arabis alpinus* are *annuals, biennials,* or *perennials.* Be good enough to state also the best moment for sowing, and whether, if sown in April, such as I have done, they will bloom this year or the following. —E. Simons, 1 *Contich, Antwerp.*

Reply.—*Limnanthes Douglasii* is an annual. If sown in spring it flowers in summer and autumn; if sown in July or August it flowers in spring and summer. Near Antwerp it perhaps might do sown in September. *Arabis alpina* is a perennial, and may be sown at any time during spring or summer; but it is best sown early, as the seedlings generally make slow progress. If sown this year most of the seedlings will flower the following spring.

Echoes from the Hives.

Helmingham, Suffolk, May 27th, 1890.—This is a very early season here. I can take off a crate of sections this week. I have never been able to do such a thing in the month of May before.—H. J. O.

Odcombe, Somerset, May 31st.—In this district bees required feeding till the middle of the month. On the 22nd weather was very fine and warm, and I put on supers, many of which were taken to at once, and work went on very briskly up to and including the 25th inst. Since then there has been very little doing in supers, owing to the prevalence of cold winds. There is a great improvement in the weather to-day, and should we get it fine and warm during June, there will doubtless be an abundance of honey, as stocks are in good condition and ready for work. I heard of many swarms during the fine weather last week, and one as early as the 11th, but none of my twenty stocks have swarmed. Should weather continue fine next week I hope to put on second crate of sections, and as there is such a difference of opinion as to whether these should be put under or over the first crate, I shall try an equal number either way, and will report the result.—J. Sarell.

Waltham Cross, May 30th.—After a long silence I am sending you a good account of my bees. As I removed to London last year I only kept one hive, which gave me eighty complete sections; went down first week in April, started stimulating on eight frames, and increased by May to eleven. On May 8th put on crate of Lee's hanging sections; ran down on Bank Holiday and found them nearly all full. I added another crate, and went down to-day and got fourteen complete sections. The hive was full of bees, and altogether a promising year for bee-keepers. Weather fine, but a cold east wind.—Amateur Bar-Frame.

N.B.—There will be an open class for 24 lbs. of run honey at Waltham Abbey in July. First prize 10*s.* No entrance fee. Will send particulars later on.

Oxendon, Market Harborough, May 31st, 1890.—My four stocks came through the winter safely, and appear on the point of swarming, which I wish they would do. Supers on, and three of them working in them, but honey coming in slow. I notice two of them carrying out drone brood, which is very early. Will you tell me the cause in the *B.B.J.*?—C. Wells.

[Stoppage of income most probably.—Ed.]

Auchreddie, Ellon, N.B., May 28th, 1890.—The weather here is not very favourable just now for brood-rearing. The spring, although very early, has been rough and cold all through, with a good deal of fog, so the bees have had few working days. I hope we shall have a change soon.—Andrew Cruickshank.

Notices to Correspondents and Inquirers.

J. G. (Dudley).—The comb contained only chilled brood, but we must advise care, because, as your medical knowledge will tell you, dead brood in a hive prepares the way for ultimate foul brood in many cases.

*** *All queries unanswered this week will appear in our next, together with several communications in type, but crowded out.*

THE

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Editorial, Notices, &c.

HELP IN NEED.

The foul-brood question has been discussed *ad nauseam*, and so many 'disheartenings' to bee-keepers have been made known through its medium, that, as announced on p. 253, we had resolved to reserve further comments on the subject till a more fitting time, and to eschew all reference to it in 'editorials,' at all events for some time to come. Somehow we cannot conceal from ourselves the fact that resolutions of this kind are, perhaps half-unconsciously, formulated in one's mind, if not actually instigated, by motives of expediency. We feel that to be for ever recurring to the one unpleasant theme which bee-keepers possess so lively a dread of having personal experience of—the, as it were, constant parading of the 'skeleton in the closet'—might have a bad effect on the hoped-for popularity of the pursuit, and that we had better, therefore, devote this portion of our space to the discussion of more pleasant subjects. Well, we had so intended, but there is so much of, we had almost said pathos, in the letter of a working man bee-keeper just received, and it gives so just an insight into the substance of many other communications which reach us, that we make no apology for printing it in the writer's own words. Writing from Cumberland, he says:—

'Having six stocks of bees all affected with foul brood, will you kindly give me your opinion as to the best way of getting clear of it without destroying the bees? Would I be likely to succeed if I destroyed all the combs and brood about the end of July, then united two lots together, providing them with full sheets of foundation, and feeding with syrup to which salicylic acid has been added, and afterwards thoroughly cleaning all hives by boiling, then painting—outside with lead paint, and inside with carbolic or salicylic acid? Could I again use the frames after cutting out combs, providing they were boiled before using again? Can I keep combs for use that have been used on these same stocks—the said combs being now clean, and having no sign of foul brood about them, as they have been used chiefly over the brood chambers?

'In conclusion, Mr. Editor, I should say I have done my very best in trying to get clear of this pest, but am sorry to say I have not been successful so far. I have tried feeding with salicylic acid, carbolic vapour going through all brood chambers, probing all affected cells with salicylic acid, besides using acid after extracting and before returning frames; but I find little improvement this spring. I may tell you that all my queens are young, and that I obtained about 300 lbs. of honey last year, which I sold at 1*s.* per lb., excepting what I used for home.

'I hope, Mr. Editor, you will have patience with this long letter; it is my first time of troubling you, and there is no association within ten miles, so I have to obtain my information only from your *Journal*. I am glad, however, that working men like myself can get advice at so small a cost.'

Here is a working man *very* anxious to save the lives of his bees, as well he may be, seeing that the whole of his live-stock is at stake. None can say he has not done his 'very best,' according to his lights, in endeavouring to eradicate the disease from his little apiary, yet so far he is to-day in the—some would say—hopeless position of having all his stocks affected. We can do little beyond urging a continuance of curative measures, unless we advise a trial of Mr. Sproule's formic-acid remedy, which in several instances within our knowledge has had excellent effects.

In reply to the queries put *seriatim*, and the measures proposed to be taken for effecting a cure, our correspondent has laid down a very heavy programme for himself. To destroy all combs and brood at the end of July, have new combs built from foundation, and boil, paint, and disinfect all hives, means a lot of work and not a little time in carrying it out; but it could be done by one determined enough, and the reducing of the stocks by one-half releases three hives for disinfecting, &c., so

that it is quite practicable. But it may so happen that matters will be more hopeful by the time named, and that a total destruction of all combs and brood may be unnecessary. Some judgment must, therefore, be used before taking such extreme measures. We should like to see a sample of the foul-broody comb, and have a few further particulars before advising, and after having these sent our advice might possibly be to use still more drastic measures.

It is to be feared that our friend has himself unconsciously spread the mischief to all his colonies last year, by incautiously working among them without reference to any single stock being diseased. This is the *one* point we cannot too strongly insist on, that a constant and vigilant look out be always observed for the slightest trace of the disease, and a rigid observance of every precaution when once it is discovered. Few bee-keepers seem to be aware of the danger of spreading foul brood among their own bees by the most simple-minded carelessness, and surely there is work here for the official experts of associations as well as for the executive themselves, in impressing this fact on their members. When it is seen how almost hopeless is the case of a bee-keeper possessing every desire to rid his apiary of foul brood, and willing also to spend any amount of labour in the effort, but lacking the scientific knowledge which is of such importance in the proper carrying out of these efforts, of what infinite value would be the help an association could afford him in his labours.

It is partly with this view that we have again referred to the foul-brood question, and have utilised the case of our Cumberland correspondent as illustrating the need for bee associations having local secretaries in every district of their respective counties; for it is only by possessing a thorough organization extending into every district that county associations can hope to effectually fulfil their mission.

ROCHESTER SHOW.

The Annual Meeting of the Bath and West of England Agricultural Society was opened at Rochester on Thursday, June 5th, and continued to Tuesday, June 10th inst. Fine weather favoured the meeting during nearly the whole of the time, and the Show has been, we believe, largely attended.

During our visit on the opening day the weather was all that could be desired the rain of the previous day having given to all vegetation a delightful freshness, the journey down through 'the Garden of England' was rendered very enjoyable.

Arrived at the quaint little town—so strongly suggestive of Dickens—we found the whole place gay with bunting, and the inhabitants evidently intent on making something of the fine days during which the Show continued open. The ground was a curiously arranged one. On entering, the first impression was one of disappointment at the limited extent of shedding and the small number of exhibits visible. Quite a small affair it looked; but on mounting the hill we found the first view had been confined, as it were, to the neck of the sort of 'bottle shape' the ground assumed, and that very much the largest portion of the Show was invisible from the lower ground. When viewed from the high ground on the Chatham side of the Show-yard, the town of Rochester presented a very picturesque appearance with its castle, cathedral, and other notable objects of interest in view, and formed a pretty picture.

The bee portion of the Show was not extensive, much to our regret, and we should think to the regret of the appliance-dealers who failed to enter the competition; for with a Show extending over five days—extensive shedding, as dry and well protected from the weather as a Regent Street shop—there was every inducement for a good display, and one would think a very small risk of having to take back unsold goods. However, the entries were not large, and consequently the competitions far from keen, some of the hives taking awards which were scarcely well earned. For instance, it can hardly be called 'up to date' to stage an otherwise good and cheap hive having a floor-board with a raised edge one inch deep, on three sides, into which the hive dropped when set in position.

In the class for 'collections' only two competitors entered for the two prizes, and the merits of each were very nearly equal, Messrs. Green & Sons beating their opponent, Mr. Overton, by a few 'points.'

The hive classes, too, were not well filled, and consequently the competition was divested of a portion of its interest. Perhaps the extraordinarily busy times manufacturers are having just now may account for the smallness of the competition: at any rate, we can pass over the hives without further remark than that we hope to see a very different state of things at Plymouth.

Of novelties, there was an improved rapid feeder by W. P. Meadows worth bearing in mind. It was of the Canadian type with wood divisions from which the bees take the food; but the divisional part was removable, and when lifted out the box portion could be used for dry sugar or for scraps of comb requiring emptying by the bees. The very simple and easily made foundation fixers shown on p. 269 of *B.J.* were also shown with partly worked-out frames of foundation on them, as taken from the hive, and were

considered worthy of first honours in the class, Mr. Garrett taking second with a 'new idea' in section crates which with a little further 'developing' will be a very useful improvement. The third prize was awarded to a 'Tom-tit' excluder affixed to a hive of gigantic proportions, apparently quite too big for anything short of Brobdingnagian bees; but with a ventilating entrance arrangement for winter possessing some merit, but which was removed from the cognisance of the Judges owing to it not having been mentioned in the entry.

The honey classes had the same fault as the others, 'Not too well filled.' Some nice honey of this year was shown, and some fairly good sections, but we expected to see a full entry in view of the quantity of early honey gathered in some parts. Probably the majority of our well-known exhibitors are reserving their strength for Plymouth. Below is the list of awards:—

Appliances.

Class 1.—For the best collection of hives and appliances. First prize, 30*s.*; second prize, 20*s.* 1st, Green & Sons; 2nd, C. T. Overton.

Class 2.—For the best observatory hive stocked with bees and queen. First prize, 20*s.*: second prize, 10*s.* 1st, C. T. Overton.

Class 3.—For the best and most complete frame hive for general use, unpainted. First prize, 20*s.*; second prize, 10*s.* 1st, C. T. Overton; 2nd, Hutchings Bros.

Class 4.—For the most complete frame hive (inexpensive) for cottager's use, unpainted. First prize, 20*s.*: second prize, 10*s.* 1st, C. T. Overton; 2nd, Hutchings Bros.

Class 5.—For the best honey extractor. First prize 15*s.*: second prize, 10*s.* 1st, W. P. Meadows; 2nd, C. T. Overton.

Class 6.—For the best feeder. First prize, 10*s.*; second prize, 5*s.* 1st, W. P. Meadows; 2nd, W. P. Meadows.

Honey.

Class 7.—For the best twelve 1-lb. sections of comb honey. First prize, 15*s.*; second prize, 10*s.*; third prize, 5*s.* 1st, Rev. F. T. Scott.

Class 8.—For the best six 1-lb. sections of comb honey (gathered during 1890). First prize, 15*s.*; second prize, 10*s.*; third prize, 5*s.* 1st, Rev. C. W. Bancks; 2nd, E. H. Hodgeman; 3rd, Rev. F. T. Scott.

Class 9.—For the best three 1-lb. jars of run or extracted honey (gathered during 1890). First prize, 15*s.*; second prize, 10*s.*; third prize, 5*s.* 1st, J. Garratt; 2nd, E. H. Hodgeman; 3rd, T. Badcock.

Class 10.—For the best twelve 1-lb. jars of run or extracted honey (not granulated). First prize, 15*s.*; second prize, 10*s.*; third prize, 5*s.* 1st, E. H. Hodgeman; 2nd, Captain Ord; 3rd, T. Badcock.

Class 11.—For the best twelve 1-lb. jars of granulated honey. First prize, 15*s.*; second prize, 10*s.*; third prize, 5*s.* 1st, W. Sturdy: 2nd, Captain Ord; 3rd, T. Badcock.

Class 12.—For the best and most attractive display of honey in any form. No entry.

Miscellaneous.

Class 13.—For the most interesting and instructive exhibit of any kind connected with bee-culture not mentioned in the foregoing classes. First prize, 20*s.*; second prize, 10*s.*; third prize, 5*s.* 1st, T. Badcock, for foundation fixers; 2nd, J. Garratt, for super crate; 3rd, G. Wells, for 'Tom-tit' excluder.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 1st page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

QUEEN-REARING, DYSENTERY, ETC.

[212.] Though not instructive, it is certainly amusing to find the old ground being gone over again in the article to be found on p. 260 (194) of the *B. B. Journal.* We have so many times been threatened with the downfall of modern methods of artificial queen-rearing that practical breeders can afford to smile at the latest scare.

As a matter of fact queens reared by natural swarming are no better than those reared artificially, but *understandingly*, by the practical breeder who studies nature closely in his work, but at the same time avoids the serious drawbacks accompanying the natural course of swarming. I see the writer says: 'Winter dysentery is solely the result of rearing queens under artificial conditions . . . . also claim that cutting out cells, grafting . . . . hatching in the nuclei, &c., will *always* result in the production of a worthless queen.' He then goes on to say that if the same queen had been reared under natural conditions 'her progeny would never suffer from winter dysentery,' &c. Now, unfortunately for himself, your correspondent makes it appear that his experience is extremely limited, and his own observation of a very narrow kind, or why does he overlook the past history of the subject? Why forget that *dysentery* was known in the past, when queens were, as a rule, saved from *natural* swarms? Why will artificial methods *always* produce worthless queens? Surely the writer is himself offering queens for sale *bred from* such *worthless* specimens he has *imported* from breeders who make it a rule to rear by so-called artificial methods. Does not his 'rock' crumble into dust to begin with?

I do not for one moment doubt that naturally reared queens are far superior to those he had been in the habit of rearing by other means under his *own* management; but at this day

dysentery is far less known, now that so-called artificial queens are produced in the proportion of fifty to one swarming queen. Your correspondent has himself, in these pages, on several occasions, greatly lauded certain imported queens and their progeny, and yet the same queens were obtained from a breeder whose rule is to rear—*not* by natural swarming. Could he, then, have seriously considered his subject in all its bearings before rushing into print the words '*always worthless*,' &c.?

Again, what value is there in a virgin queen, however reared? The value or worthlessness of her progeny is 'fixed' by the qualities of the *male* she meets with. Your correspondent is not able to guarantee the pedigree of the various males his queens are to indiscriminately mate with; and whether they come from good or bad stock, subject to weakness, disease, or any other undesired quality, the progeny is to be perfection!

Why, he has not a single leg to stand on. It is a case of the 'blind leading the blind,' and a wilful disregard of the methods followed by the practical queen-rearer of to-day, who rears his queens from the egg, or the egg as it just hatches, and surrounds his cell-building combs with a much larger proportion of young nursing bees than are to be found in the average swarming hive, without the depletion of numbers and often resulting lowered temperature experienced after the issue of swarms, which happens to be at the most critical period of the embryo's growth. 'Hallamshire's' statement about artificial queens being 'always useless,' besides being utterly unfounded, could be here refuted by facts, as I have in my possession letters, which may not be advertised here, telling of so-called artificial queens having surpassed all other swarming queens in several apiaries. Breeders are now securing their queens by plans which are so decided an improvement upon natural swarming, and its very unnecessary extra labour, that it will never be the practice to secure them by the extremely crude way followed by your correspondent.

Natural swarming and indiscriminate mating leave much room for improvement, and the wide gulf of the 'survival of the fittest' has been so far bridged by the modern queen-rearer that he takes in hand at once what he has *found* to be the *best* on *both* male and female side, not forgetting that the male always plays the most important part, to overlook which fact is to lose sight of the first principles of breeding.—A QUEEN-BREEDER.

AN ACT FOR THE SUPPRESSION OF FOUL BROOD IN GREAT BRITAIN.

[213.] All readers of the *B.B.J.*, and those who are bee-keepers, will heartily join with me in saying that an Act for the suppression of the terrible scourge of foul brood is absolutely and immediately necessary to prevent, in a great measure, the spread and increase of the disease.

Firstly, to put a wholesome check upon those persons who simply keep bees for the sole purpose of gain, and will for this purpose stoop to the meanest of all measures—that of selling bees and appliances from an apiary that is affected in various degrees by foul brood, not caring to what part of the country they are sent, or who is the loser, so long as they clear their own apiary from the pest and make some gain by their malicious dealing.

Secondly, to compel those who are so unfortunate as to have the disease among their bees to give timely notice of the same through the medium of a leading journal on apiculture, so as to enable their immediate neighbours to remove their stocks to a safe distance, and prevent in the best possible manner the disease spreading any farther than the apiary it first attacked; and upon the apiary being cured, or the infected stocks destroyed, such apiaries shall be declared free from foul brood by an inspector, who would have power vested in him to examine such stocks and apiaries.

These questions, then, naturally present themselves:—1. Who are the best people to invest with authority from British bee-keepers to take the initiative? 2. By whom will the expense be borne? 3. How can it best be done?

Surely our central Association should be asked to procure this great boon for bee-keepers. The Committee of the Association is composed of men who have great influence, and who would be perfectly willing to do anything that will forward and materially improve the art of apiculture, and consequently the Association. The expense will, I feel confident, be willingly subscribed to by all true bee-keepers, and those who are willing to lend a helping hand to such a good cause. Then, how can such a necessary Act be procured? There must be amongst our army of bee-keepers some gentlemen who are members of Parliament, and who would be willing to bring forward such a Bill at the request of the Bee-keepers' Association, and do their utmost to have it passed and made law. There cannot be much opposition, if any, and the boon derived would be such as would endear the names of the promoters in the memory of the bee-keeping fraternity.—EDWIN THOMAS, 17 *Ravensbourne Road, Catford. June 2nd*, 1890.

HELPING COTTAGERS.

[214.] This year with me has been much like last year. I have one rack of sections, nearly all of which are partly sealed, but I have only taken one section as yet. My other hive (I confine myself to two) I am working for extracted honey, and it has just been turning out drones, so the spring harvest is about over.

On Tuesday week I nipped a swarm in the bud by playing on it with the garden hose, and by taking the necessary steps in the afternoon swarming has been put a stop to, for the present at any rate. My two hives and two nuclei wintered well under enamelled cloth, and consumed very little of their stores. I find enamelled cloth keeps the hive very dry if there is plenty of warm stuff on the top, but then pieces of

wood or anything can be used, nor have I found it necessary to have very wide entrances. I find the best way is to put strips of enamelled cloth under the section racks, using it double, with a shiny side next to the frames and a shiny side next to the rack. I have had the same strips in use several years. I may add that I attach much importance to having good thick floor-boards for wintering.

With regard to helping cottagers to start bee-keeping, a plan I have thought of is as follows, viz., to get a cottager to allow me to keep a hive in his garden, and to let him have half the honey until the bees swarm, and the swarm to be his, so that the first year he would either get half the honey or a swarm; he would also have advice and assistance, and he could either make a hive or put the bees in a skep or box. One of my nuclei I gave away to a man who had lost his bees; the other I should be happy to use as above suggested if any cottager within eight or ten miles of me would like to try the plan. I am afraid it is rather late for this year, as I have robbed this nucleus of brood, and it is only on six frames, nor can I speak with certainty as to the temper of the bees. They are rather savage, but have now raised a new queen. If you think well of the plan, you can mention it in the *Journal*.—Thos. F. Leadbitter, *Auckland House, Brondesbury, N.W.*

'CHEAP' NOT NECESSARILY 'NASTY.'

[215.] May I be allowed my say alongside 'J. W. Daniel' (195) on page 261? They say 'Birds of a feather will flock together:' 'J. W. D.' is a working man, I am ditto, and a bee-keeper: but if I were obliged to give 15*s.* for every hive I required I should soon cease to be a bee-keeper. Not that the 15*s.* hives sold by appliance-makers are not worth the money; that they are, and cost pretty well that amount I am certain: but the question is this, Is it necessary to use such hives for the well-being of the bees? I am quite convinced by personal experience that it is not at all necessary. I started bee-keeping about five years ago; the first of my hives I took a very great deal of pains with—double-walled, chaff packed between walls, double floors, movable and reversible, zigzag entrances, porches, and every *improvement*. Little by little these extravagancies have given way, until the hive I now make and use is a simple box of $\frac{1}{2}$-inch deal, with a fixed bottom extending to form an alighting-board one side: a couple of $\frac{3}{4}$-inch square pieces are nailed along the top outsides of two opposite sides to take the frame ends, and a thin fillet on the outside of these to come up $\frac{3}{8}$-inch to cover ends of frames. Such hives can be tiered to any extent, and a plain 'Cowan' roof keeps all dry. Having had considerable summer and winter experience with such hives, I have proved them to be quite equal to my most elaborate 'bee-palaces,' both for wintering and summering. The secret is, give the bees *plenty* of good sealed food and keep them dry, and I am positive they do not know or care whether the hive walls are $\frac{1}{2}$-inch or 3 inches thick. The frames I use are $\frac{3}{8}$-inch thick ones (a good many condemn a thin top bar, but I have never had a single comb give way the least through having thin frames). I prefer them because they are cheapest, and answer my every purpose well, and I have had scores of them in use for years, so that my hives now cost a mere nothing to what they did formerly, while my average honey harvest has increased. Perhaps, as 'J. W. D.' says, more 'brains' go with my hives now than in my earlier days. I might say the hives are put together fairly well (being a bit of a tradesman), and I make them watertight and dry with paint, which almost any one can do with a little care, so that I now get a very good, serviceable hive very 'cheap, but not nasty.'—M. Thomas, *Punnett's Town, Hawkhurst, Kent.*

THE DISTANCE BEES FLY.

[216.] Will you kindly say to what distance away from the hives do bees fly to collect honey? By answering this in your next issue you will greatly oblige a young bee-keeper.—A. H. Peach (aged 12), *Highcroft, Oadby, near Leicester.*

[The greatest compliment we ever received on matters relating to bees, was from an old cottager aged over eighty years, whose acquaintance we made some years ago, when doing some manipulating in a bee-tent, when he declared that he had 'learned more about bees and their ways in that one hour than in all the sixty years he had kept them.' To have intelligent queries put to us by a veteran who had kept bees many years before our own advent into this life was a novel and pleasing experience.

Now we have a query from a 'bee-keeper' who has reached the mature age of twelve, and it is no less pleasing to hear of one so young taking an interest in 'bees and their ways.' We therefore beg to inform our little friend that bees—though some persons say they travel as far as four or five miles away from their hives—certainly do fly a distance of two miles in all directions from their home in search of food, so that if he draws an imaginary circle around his hive two miles away he will find that his bees have an area four miles in diameter in which to collect honey.—Ed.]

BEE PROSPECTS IN LINCOLNSHIRE.

[217.] The prospects in this district are very hopeful for the coming harvest of honey. Bees have passed through the winter with very little mortality, and stocks are now strong. Swarming has commenced among the skeppists, and bees are taking well to the supers. The Lincolnshire Bee-keepers' Association has been re-organized, and is now in good working order. We have a strong Committee, an energetic Hon. Secretary in Mr. Houghton, and District Secretaries at Alford, Brigg, Boston, Gainsborough, Grimsby, Horncastle, Spalding, Stamford, Sleaford, and Wainfleet.

The report for 1889 shows a balance in hand of over 10*l.*, and it is to be hoped that all bee-

keepers and others interested in apiculture will at once join the Association and assist the Committee in carrying out its rules and objects, one great object being to assist the labourer in improving his position in life by making the best of his bees, another to do away with the abominable sulphur pit. We shall be glad if any one will offer himself, or recommend suitable district secretaries for Lincoln and Grantham. A post-card addressed J. H. Houghton, Louth, will find our Hon. Secretary.—H. O. SMITH, *Louth, Lincolnshire.*

P.S.—Members of the Lincolnshire Bee-keepers' Association are allowed to exhibit at the annual show of the Lincolnshire Agricultural Society. Same fees as their members.

SPREADING BROOD.

[218.] Since my last 'Echo' we have had various kinds of weather, from very bad to very good, and *vice versâ*. At Whitsuntide, friend Sells, senior, paid me a visit. On the Monday we enjoyed ourselves very much, looking over stocks, and putting on crates of sections, and boxes of combs for extracting; also here and there slipping in a frame of foundation in the centre of brood nests. Mr. Sells and myself discussed the advisability of inserting frames of foundation inside or outside of the brood nest. I demonstrated to him, and from what I showed him he fully concurred, that if combs are placed in the centre of nest (using judgment, of course), they are filled from top to bottom with brood in almost no time. Our friends have lately been speaking of leaving the brood nest severely alone, and speaking as though inserting foundation in the centre was entirely wrong. With such opinions I am entirely at variance. I have practised it for years, and in no other way can I get stocks built up so quick. In my experience a sheet of foundation is much better than combs.

We have now the whitethorn and winter beans in full bloom, and on which the bees have been revelling to their hearts' content. Although we have had a few days rather cold, everything promises that if we get fine, warm weather, we shall have a good honey harvest.—JOHN WALTON.

[We readily admit that in the hands of a skilful bee-keeper the operation known as 'spreading brood' is of great value; but, on the other hand, the facts recently made public in our columns (and we have by no means published all the mischief detailed to us) prove that 'spreading brood,' in the hands of inexperienced or injudicious bee-keepers, is fraught with the most serious consequences, and that immense mischief will result if some check be not put on the practice.—ED.]

SINGLE-WALLED HIVES.

[219.] I have just come across a letter in *B. B. J.* by Mr Daniel on my half-inch hives.

In a letter to the *Journal* last autumn, I stated I was wintering twenty-one hives. With the exception of one which was queenless and another which was not as strong as it should have been, which I united, all have come out in perfect health and strength this spring. I have sold another, so am commencing with eighteen stocks—all have section racks on. I have several working in two supers each, which at least proves they have wintered well, and I consider that the time will come when, except in very cold climates, we shall hear no more of big double-walled hives, which take two men to lift when empty. Since Mr. Daniel was here, I had a visit from the Hon. Secretary of the Knaresborough Bee-keepers' Association, accompanied by a friend. After seeing the strength of my bees and the simplicity of my hives, they stated their intention of *going in* for them. Since their visit an appliance dealer has been over, and on leaving said, 'I must tell you that, until seeing your bees, I did not believe in single-walled hives.' He has now got a number made like them.

I hope we shall have a better show of appliances and honey this year at the Ripon Agricultural Show, held on July 22nd (an advertisement of which will appear in the *B. B. J.*) than we had last year. There are a growing number of bee-keepers in the district, and the appliance dealers, who did send to the show last year, got orders which would certainly pay. The honey last year was also not up to the mark. I was judging, and was obliged to give first prize for sections to some that had never been scraped or cleaned when taken off the hive, although perfect in every other way. There are so many new beginners that I expect a good display this year. The Society provides a large tent for this special purpose.—ARTHUR J. H. WOOD, *Belwood, Ripon.*

P.S.—One of my single-walled hives has wintered close to the moors, and sent off a large swarm on the 19th May.

TURPENTINE FOR BEES.

[220.] In last week's *B.B.J.*, in your note on the paragraph 'Turpentine for Foul Brood,' you remark that 'fifteen drops to the quarter-pint of syrup is much in excess.' I gave that proportion to a hive of bees for some time last month without any bad effects whatever, so far as I have yet seen, and the bees took it from a bottle-feeder as readily as ordinary syrup. No doubt they are of a different 'kidney' from us. —W. M., *Blagdon.*

[Bees, as well as other animals, must get rid of waste liquid products somehow. The higher animals do this by means of the kidneys, lower forms by an equivalent arrangement. Oil of turpentine as an internal medicine acts violently on these organs, and is now a somewhat coarse and crude prescription for human beings. Now, as the proportion you name is about the same as a dose for a man, we consider, when asked what a safe proportion is for an insect, that sixty drops, or one teaspoonful, to a pint of syrup is an excessive quantity when beginning a series of experiments on its value. In bee-keeping, the motto, 'Festina lente,' should be ever remembered. If you find you can increase the dose with perfect safety by all means do so; but feel the strength of each spoke of the ladder you are climbing.—ED.]

A GOOD REPORT FROM DEVON.

[221.] In December, 1889, I sent you an 'Echo' of my experiences of the year, 186 lbs. (section and extracted) from one hive and its first swarm, in addition to which the same hive gave me three casts, two of which I united; and you intimated that if I succeeded in carrying them all through till May I should have done well. I have done so, and also my others, which were driven lots, making nine in all. My first swarm is now on twelve frames, and sections on and occupied. The parent hive and casts now number ten and eleven respectively. I have made during the winter hives arranged so that the brood nest is suspended during manipulation, as I work with starters under for the stocks I *wish* not to swarm. All my bees are transferred into clean, fresh hives. I think that a great inducement for renewed energy on their part. I have also made a slow feeder, obviating the necessity of removal to replenish, and consequent loss of heat. It can be regulated also from one to any number of holes. Forage has been abundant and weather fine, so hope for good times, and wish others the same.—DRONEY.

IRISH BEE-KEEPERS' ASSOCIATION.

The Committee met on the 3rd inst. Present: Lord Ardilaun (in the chair), Rev. P. Kavanagh, Dr. Traill, Mr. Read, and Mr. Chenevix, the hon. secretary. Arrangements were made for giving lectures in the bee-tent at various places, including Limerick and Ennis, and discretionary power was given to the Hon. Secretary to arrange for an examination for experts' certificates on the conditions determined upon by the Committee last year.

BEE SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

June 23–27.—Royal Agricultural Society. Plymouth Meeting. Entries closed May 1st. Secretary B.B.K.A., J. Huckle.

June 17–18.—The Wilts B.K.A. will have their tent and a stand for honey and bee appliances in connexion with the Wilts Agricultural Show at Marlborough. Particulars from Hon. Secretary, W.B.K.A., Buttermere, Hungerford.

July 8–11.—Hampshire B.K.A. in connexion with the Royal Counties' Agricultural Show at Winchester. Hon. Secretary, H.B.K.A., Rev. W. E. Medlicott, Swanmore Vicarage, Bishop's Waltham.

July 24–25.—Lincolnshire Agricultural Society, 25*l.* in prizes for honey, hives, &c. Entries close July 8th. Stephen Upton, St. Benedict's Square, Lincoln.

August 8–9.—Bramhall and Woodford Horticultural Society. 8*l.* 10*s.* and silver medal in prizes for honey, open to Lancashire and Cheshire only. Entries close July 26th. Lists from W. Slater, Rose Cottage, Bramhall, near Stockport.

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of May, 1890, amounted to 7515*l.* [From a return furnished by the Statistical Office H.M. Customs to E. H. Bellairs, Wingfield, Christchurch.]

Queries and Replies.

[80.] *Tiering-up Sections.*—Last year the general way to place crates on hives was putting the fresh ones *under* those nearly completed. This year it seems to be the thing to place them *overhead*, and I am following this plan, as no doubt it disturbs the bees less; but how about taking them off? Of course, you don't mean the crates to be left until end of season and all taken off together. It is an object to have some early honey for disposal, so please say the best way to act. As I take it, the crates next hive will be completed first, and the top one last. It, therefore, seems to be equal almost whichever way you work; if you have to take off the lower crates when full, you must disturb the bees more or less. I would like to know the best way to come at the sections when completed with as little disturbance as possible to the bees. I have three crates of twenty-one sections on some of mine.—F. JELLIOD.

REPLY.—If a crate of sections is 'nearly completed' before adding a second crate, it would no doubt be the wisest course to raise No. 1 up and place No. 2 below. But when three crates are on (as we suspect yours are), and none of the three 'nearly completed,' it by no means follows that the bottom one will be finished first; in fact, if you will take your own case as a test one, we think it very likely you will find the top crate first finished, provided you have sufficient bees in the hive to fill all three crates. We do not at all agree with its being '*the thing*' to place second and third crates overhead this year. Our advice is to try a few on each method, and follow that which yields the most satisfactory results.

[81.] This year, though rather a novice, I have transferred many swarms for myself and my neighbours from skeps to bar-frames, and they are all doing well except one which was driven May 6th. I saw them again in three days, and thought everything was right. However, when I went to see them on May 28th I was surprised to find the swarm had not increased at all; if anything, there were fewer bees in the hive than the day when I drove them. The queen, I am certain, was safe May 6th, as I had seen her skipping among her frightened family. The combs look quite healthy, but I am almost afraid the queen is gone, though I have not looked very carefully. Now, I would like you, if you please, to give your opinion upon this and another subject. 1. Is it likely the queen is gone, as the bees are still in the frames, and few of them appear as if they were working?

2. Supposing the queen is dead, could I replace her by another; or would it do to put a frame in this hive containing grubs or eggs from another hive; or what would be best for me to do? 3. I am afraid the swarming fever has come over my best hive. For the last fortnight many drones were flying about, but as I had two crates of twenty-one sections on, it did not occur to me the little things would think of swarming, though the foot-board was covered with bees and a few were clustering here and there. However, having to go from home early one day last week, I found on the following day, though it was fine, there were not so many bees on the foot-board, and there is not a single drone to be seen. Is that a sign that the bees have swarmed? I should say the bees are still working in the sections, and even the second crate is almost filled with honey. Allow me, from this extreme corner, to thank you sincerely for the *B. B. J.*, which I consider most valuable. —MONA, *Anglesea.*

REPLY.—1. You can ascertain very easily whether the queen is still there by examining the combs for eggs. 2. If the bees are still fairly numerous and there is a fair quantity of sealed brood in the hive, a laying queen would be better than a comb with eggs from which the bees might rear one; but if the latter be given you must mark the frame and examine in four or five days, to make sure that queen-cells are in progress. 3. The cool weather may have caused the altered appearance of the stock. If it has swarmed there should be no difficulty in noticing the difference in the number of bees about; but in any case you can make certain of the fact by removing crates and examining the combs for sealed queen-cells.

[82.] *Calvert's Carbolic Acid for Foul Brood.* —Kindly tell me if Calvert's No. 3 carbolic acid in crystals is suitable for making Cheshire's phenol solution for foul brood? I regret to say I have got this microbe amongst my bees. A month ago all looked so promising—six hives with 1889 queens—now they all show slight signs of this dread disease. If the No. 3 is not right, will Calvert's No. 1 or 2 do? I can get the No. 3 at 2*s.* the one-pound bottle, but the No. 1 or 2 is much more expensive.—T. D. SCHOFIELD.

REPLY.—There is no reason why 'Calvert's' should be specified at all, as will appear when answer to J. J. Shipman is read (p. 171, March 20, 1888). Buy pure phenol in crystals and use them one in 400 in fairness to Mr. Cheshire, if you are intending to try the so-called 'Cheshire Cure,' but we have little faith in your stamping it out by this means alone. We hope you may: but all the infected combs, &c., burn forthwith. The highest authority in this country (Klein) says:—'A great many micro-organisms can be exposed to a one per cent. (this is four times as strong as Cheshire's solution—ED. *B.B.J.*) solution of carbolic acid for hours without in the least being affected: for on being then transferred to a suitable nourishing medium they grow and thrive well.' It need hardly be said, however, that in any attempt to cure foul brood the greatest care must be taken by constantly using disinfectants when passing from hive to hive. Your main difficulty will be with such of the stocks as are ready for supering, and we advise that a selection be made of the strongest and least affected for the purpose of honey-gathering this year. The curing of these may be postponed till autumn, and after one 'dressing' is administered, the surplus chambers may be put on, leaving all medicating aside for the present. By confining your 'doctoring' to fewer hives and those the most seriously affected, you will be able to give them more attention and add to the chances of success.

[83.] *Refusing to Destroy Foul-broody Stock.*— Since writing my last I have met with some discouragement. Three of my four hives are very strong, having from ten to twelve 'Abbott's standard' frames nearly full of brood; supers on two of the three are filling, but, alas! within a hundred yards of my bees is a stock which has foul brood. The owner thought they were not flying as strong as they ought, and requested me to examine it. I found the hive very weak in bees (less than a pint), wax-moth and spiders in the side combs. and the two centre combs contained patches of brood about *six inches square.* It was the first time I ever saw foul brood, but could not mistake it. as most of the brood was rotten or rotting in all stages of growth, and emitted a foul odour. I advised the destruction of the whole, but the owner would not hear of it, '*as he could lose nothing* by allowing them to remain and take their chance.' Had the bees been in perfect health they would be worthless (unless united), as they were so few in number. I cut out all the combs, as they contained honey, and advised the melting down, if not burning, of the combs for the wax. The bees were allowed to remain in the hive on empty bars, and *minus* their queen. Can you advise me as to prevention of contamination of my own hives?—G. E., *Exmouth.*

REPLY.—Since you have removed all the combs and honey, a very short time will see the end of the wretched little lot of queenless bees, and as there is no temptation for robbing you may say the chances of infection are minimised. After the poor bees are dead there should be no difficulty in obtaining permission to wash the hive well with carbolic acid solution, and you will then be safe.

[84.] *Duplicate Entrances.*—I have several stocks of bees in bar-frame hives which I wish to prevent from swarming. I put another hive underneath each (partly filled with foundation) about three weeks ago, and have since put a crate of sections on, which they are working in very well, as they are also doing in the new hive at bottom. When I put the hive underneath the new entrance was in the same place that the old one had been, while the old one being lifted up, so that it was just above the top of the new hive, or half-way up the front of the

two. This old entrance I blocked up. The question I wish to ask is this, Would it be a good plan, and a further preventative of swarming (now the bees are at work all the way up), to open the old entrance so that they have two, the one on the floor-board, and the other halfway up?—St. Ivian, *Needingworth, Hunts.*

Reply.—We never approve of entrances between the separate tiers of a hive; better have one good wide entrance at bottom only. You may give ventilation below in very hot weather by raising the hive from its floor-board with wedges so the bees can pass in and out all round if needed, but let the entrance, however capacious, be on the floor-board.

[85.] *Moving Bees to Clover.*—Having a large field of clover about a quarter of a mile from where my hives are at present. Would you kindly advise me if it would be safe to move some of the stocks to a cottage garden in a corner of the field, to be near the clover when it comes into bloom? I am afraid it is not far enough away, as the bees might return here and get lost.—J. P. Robertson, *Montrose.*

Reply.—A bee can fly a quarter of a mile in a few seconds, so that even if it were safe to move your stocks it would not be worth the trouble: but it would not be safe, as many bees would return to the old stands.

[86.] *Transferring.*—I have a stock of bees which have not swarmed in a bar-frame hive—frames 13×10 in.—and I have two new hives with standard frames empty. 1. Would you advise me to transfer the bees into one of the new hives and do away with the old one? if so, when and how to do it? 2. I should be glad to make two lots of them this season, and get a fair supply of honey as well. What would be my best plan? I have just put on a box of eight standard-size shallow frames across the other frames, as they are too long to go lengthways. 3. I have the bees in an allotment in front of my house, and I want to move them to my garden at the back. How am I to do it, as I cannot move them a yard a-day, because of the roads and other houses?—Geo. Essam, *Woodford, near Thrapston.*

Reply.—1 and 2. Do no transferring now if you do not wish to retard your chances of success this season. If shallow-frame box has been protected from brood, and contains only honey, remove it at once, and push on the bees, by a little feeding if necessary, to swarm early. Hive the swarm on old stand, and remove parent stock to your own garden, and twenty-one days later transfer bees and combs (if latter are good and worth saving) into the new standard hive. If it should throw a second swarm, ten or eleven days later, cut out all queen-cells and return it. 3. The top swarm must, if possible, remain in the allotment garden till quite winter-time, when it may be removed with safety: but five or six days after the swarm is hived the box of shallow combs must be returned to it for completion.

[87.] *Queens passing through Excluders.*—I have kept bees only two or three years, but my experiences differ this year from the past. I put a box of eight standard frames (which had been extracted from last year) on to one of my hives, and last Wednesday I went to take them off, seeing they were full (that is, from the top) and with beautifully white capping, when lo! to my dismay there were on six of the frames patches quite as large as one's hand with brood in the maggot state. I took four of them out, and cut off the broody part, and extracted the remaining part. I have said I extracted the remaining part—well, I did after a fashion, but it was with a great deal of difficulty that I could get any of the cappings off, and then the honey was so thick that I could not get it to leave the cells to any amount. Will you kindly tell me:—1. Why they become broody, seeing queen-excluder was used? 2. Is it because standard frames were used they raised a queen at the top? Or is it because the queen (which seems to be a prolific one) is small? 3. There is a space between bottom bar of frame and excluder of $\frac{3}{4}$-in.; is this right? 4. Would the $5\frac{1}{2}$-in. frame prevent brood? 5. Why do not the cappings come off and honey leave cells, as in other years?—R. W. Hill, *Bilderston, Ipswich.*

Reply.—1 and 2. If apertures in excluder zinc are of the correct size, it is probable that some oversight on your part in placing the excluder zinc on has allowed the queen to enter the upper chamber. Very rarely indeed are queens so diminutive as to pass through excluder zinc of proper make. It was not good practice to cut away and destroy worker brood at this season: rather have allowed it to hatch out before extracting the honey. 3. $\frac{3}{8}$-in. is the proper space between excluders and bottom bar of frame. 4. No. 5. With a knife very sharp, as an uncapping knife should always be, and the use of hot water to stand it in, there should be no difficulty in removing capping; but with a blunt knife the cell walls are broken and damaged in such a way as to prevent the free outflow of the honey from them when in the extractor.

[88.] *Bees not entering Sections.*—1. Although I put sections on hive five days ago the bees have not yet taken possession. I cannot understand it because honey appears to be coming in very plentifully, the weather is very warm, and there is plenty of honey at back of nest, three or four frames partly full. 2. Would it be best to extract the honey out of these frames or to leave it? I am afraid they will block up the brood nest with honey. 3. If I extracted the honey would the queen occupy all the frames in hive and bees store honey in sections? 4. If I extract the unsealed honey will it ripen of itself, or will I have to feed it back? I expect the bees only gather sufficient for the daily consumption, but they ought to get two or three times as much, as there is enough forage for a great number of bees. There are trees full of

bloom which appear untouched, such as chestnut, almond, &c. These ought to be covered with bees, and honey come rolling in. I fancy it must be that the bees cannot get up into the sections. 5. Do you not think it would be a good plan for the B. B. K. A. to issue a leaflet containing, say, an analysis of honey, the qualities, why it candies, how to tell adulterated from not, and various recipes (medicinal). This would open a market for pure honey, and having the Association's signature it would have good authority. These are intended to be wrapped round bottles or folded on to sections.—S. G. FIELD, *Crouch End.*

REPLY.—When the sections have been wrapped up warmly to retain as much heat as possible, the rest must be left to the bees, the weather, and the quantity of forage available. 2. There may not be much honey in the frames after all, so it will be best left where it is. The bees would soon seal it over if forage of the right kind was abundant. 3. Most likely the bees would store honey again in them. 4. Unsealed stuff will not ripen of itself. When honey is as abundant as you appear to think it now is, the bees will store it. 5. The questions you raise are more difficult to solve than most persons suppose, but the B. B. K. A. is fully alive to the importance of them.

[89.] *Bees Refusing to enter Surplus Chamber.*—Kindly advise me how to induce bees to take to upper chamber filled with frames of foundation for extracted honey? The bees are on eleven full frames of brood and honey, with two in front partly worked out, making thirteen in all, yet they refuse to go up into the next tier. From the body-box being so full of bees and honey, they seem to be getting listless, and don't work nearly so hard as they did a short time ago.—T. MAINMAN, *Knaresborough.*

REPLY.—If upper chamber has frames same size as lower one, remove the two front frames, with partly worked combs and adhering bees, into it, reducing the number of frames in lower hive to eleven. Also lift a frame of brood (no drone brood) into the upper chamber, taking care the queen is not in it. Set the brood between the two partly worked combs, right over centre of brood nest, and cover up warmly as you can. We assume that excluder zinc is used between the chambers.

[90.] *Early Sections.*—I removed my first crate of twenty-one sections on the 20th May, one of which I send for your examination and report as to quality. I was disappointed in the colour and general appearance of sections, and thought that using tin separators had something to do with it, but having since removed some from another hive with wood separators, I see there is little difference, and presume it must be the source from which the honey comes that affects it, as I had none so early last year to compare at this date. My first swarm came off this year on 13th May, and I have now upwards of 100 sections on six stocks well on to completion. My strongest hive, which was a cast last year, has fully fifty pounds of surplus now stored in sections and shallow-frame super, which I extended brood nest with on top, and all sections on it are in course of finishing off. Whins or gorse yielded a lot of bloom in this locality this season, also sycamore, and as I write the hawthorn looks well for bloom. Would you consider the colour of honey against the sale in an early market?—W. H., *Dromore, co. Down.*

REPLY.—Very pleased to have our first taste of 1890 honey from your bees. The colour of honey in section sent is by no means bad for the season, and its consistency is good. The flavour is rather spoiled, to our taste, by its admixture with sycamore honey, and the capping is a little coarse; but you must not expect sections of May 20th to have the fine finish and the delicate appearance of those obtained at the end of June. If placed on the market at once they should sell well.

[91.] *Wanted, a Teacher*—I see a paragraph in your last issue headed 'A Beginner's Queries.' My query is not that of a beginner, but of one who wishes to become a beginner. Can you tell me how this is to be done? I have no ground on which I can experiment with a hive of my own, but want to know how, where, and when I can find a teacher in bee-keeping?—NORWOOD YOUNG, *Finchley New Road, London, N.W.*

REPLY.—Write a line to the Hon. Secretary of the Middlesex Bee-keepers' Association, Hampton Hill, who will no doubt give you the required information.

[92.] *Foul Brood.*—I send with this a piece of comb from one of my hives, which to me looks like foul brood; if so, will you let me know, and I will at once destroy hive, bees, and combs? I have three other stocks which appear healthy: how shall I keep them so? I see in the *B.B.J.* that naphthaline is proposed as a remedy: how much should be spread on the floor-board?—S. A. B., *Bedford.*

REPLY.—The comb sent is badly infected with foul brood. Destroy the lot as you propose, and at once! There is not so much fear for your other three stocks if they are 'healthy now,' and you put away for ever all belonging to the diseased one. Bear in mind it is not so very difficult a matter to prevent infection if persons will but take the trouble to use precautions in a proper way: medicating all food given, and seeing that the bees have no access to diseased stocks, or appliances not thoroughly cleaned. To *cure* foul brood once it gets a foothold is very different. Referring to naphthaline, it is a new remedy only just made known; when we have fuller information regarding it, particulars will be given in our pages.

[93.] *Giving Surplus Boxes.*—A stock that I swarmed has, I find on looking over it yesterday, worked out the whole of the foundation, and the bees are storing honey in the last two of the fifteen frames they have now. I wish to work for extracted honey; is this hive ready for top box of fifteen sheets of foundation? Very wet

morning, being first rain for nearly a month; am in hopes of a good honey-flow after this, with fine weather.—C. NYE, *Brighton.*

REPLY.—Fifteen frames, presumably of standard size, are too many to give to a swarm of this year from which surplus honey is expected. You would have done better by confining the swarm to ten frames for brood, and have had the bees working in surplus chambers above the brood nest. It you intend working standard frames for surplus, we advise your moving all the broodless combs of the fifteen now in lower hive into the upper chamber, making up the number to ten in each.

[94.] *The Legal Right to Swarms.*—It is advisable, I know, to keep on friendly terms with neighbours, and try to arrange all little difficulties without turning the rough side; but, in case of doubt, I should glad to be informed whether a bee-keeper has not a *legal* right to go for his swarm into any garden or other enclosure in which they may have settled.—W. H.

REPLY.—If a swarm is seen to issue from a hive, and, without being lost sight of, is seen to alight, it can be legally claimed, whether in a neighbour's garden or a couple of miles away. Not only so, but if the neighbour refuses to give up possession of it he can be sued in the County Court for its value.

Echoes from the Hives.

Banffshire, N.B., June 1st.—The last week of May was very cold and stormy, with hail showers, leaving the land white: but bees are all well forward and clover will be in bloom shortly.

Dromore, co. Down, June 4th.—My strongest stock at present has I estimate stored between fifty and sixty pounds of surplus. It was only a cast or second swarm of last year, young queen of course, and wintered on seven frames, which I increased early in season to eleven, afterwards adding a crate of nine 5½ in. frames on top of brood nest; these were very soon full, and I now have two crates of sections twenty-one in each nearly ready for coming off, in fact, I have already removed eight off the top one, last week and I saw the bottom one was partly sealed. The only fear I have is of their swarming. The weather for the last four or five days has been greatly against the bees getting out—no sunshine, and high cold winds and slight frost at night.—HENRY HERBERT.

South Cornwall, June 7th.—It is long since I sent you an 'Echo,' but the sounds this season have not been of the pleasantest. We are decidedly lukewarm, and it is the most erroneous idea to suppose that everything is early everywhere in Cornwall, even the honey harvest. We read in *B. B. J.* of doings elsewhere—in the east and south of England—which have no counterpart here. True, in some warm valleys, well exposed to the sun, there are early swarms, but from the so frequent humidity of the climate the honey-flow is precarious, and this year decidedly late. On higher ground, with not too favourable positions for our hives, we are at a further disadvantage. There were a few May swarms in these parts, but I fear for their fate if they have not been fed. For three weeks we have had only about three fine days, and those at intervals. For the rest we have had drizzly and windy days and cold nights. Imagine frost cutting down potatoes on June 1st! I see that at our Cathedral city the assistant secretary of our (alas! that I should say it) late association has had a swarm, which filled a skep 11×15 inches, in six days: and another swarm from the stock (bar-frame) on June 3rd. So they must have been gathering something if only to fill the skeps with comb. The satisfaction to us here is that our hives have become, many of them at least, unusually full of brood, and we are watchful of them and of the weather. Last night was very cold, but it is warm to-day, and we are hopeful, so I have ventured to swarm a Carniolan lot (the queen kindly given me by 'A. E.'), and have put a riser on another full hive. The hawthorn harvest would have been a rare one but for the weather; now we have only odds and ends of one thing and another till the clover blooms.—C. R. S.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

THOS. F. LEADBITTER (Brondesbury).—The cutting enclosed has been sent in by several correspondents, and has gone the round of the press all over the kingdom; but we did not see that any good purpose could be served by publishing it in our pages. Such lamentable affairs are analogous to the case of a lady we read of, who, leaning back on a couch forced a hair-pin into her head, and the misadventure resulted in her death. No one, however, regarded it as more than a sad misadventure which might as easily have been prevented, if foreseen, as in the case you quote had the unfortunate man kept his mouth closed.

COL. (Swindon).—Without making any microscopical examination of comb sent—which we do not think necessary—it is in our opinion only chilled (not foul) brood.

*** *We are again compelled to hold over several queries, &c., till next week.*

NOTICE.—We would ask our correspondents to take notice of the removal of our office, and to request them in future to address all communications relating to the literary department, &c., to 'The Editor of the "BRITISH BEE JOURNAL," 17 *King William Street, Strand, London. W.C.*'

THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

No. 417. Vol. XVIII. N.S. 25.] JUNE 19, 1890. [*Published Weekly.*

Editorial, Notices, &c.

TO OUR READERS.

A very perceptible increase in the circulation of the *B. B. Journal* is just now taking place, and we solicit the co-operation of our readers in aiding us to take full advantage of this upward tendency. Every week lately the number of copies sold shows a considerable increase over the preceding one; to use a trade term the paper is 'going up:' and, with the pardonable weakness or selfishness pertaining to humanity, we are endeavouring to cultivate popularity (and a big circulation) for our paper. But in these efforts we are constantly irritated by receiving complaints of the difficulty of obtaining the *B. J.* anywhere out of London on the day of publication; the most frequent of these complaints referring to *railway bookstalls* as the places where it *ought* to be obtainable. When, however, it is remembered how enormous is the number of bookstalls occupied by Messrs. W. H. Smith & Son, a simple arithmetical calculation will show that to keep a supply of the *B. J.* on each one of their stalls is out of the question, unless there is a *demand* for them; and this fact compels the reply to inquirers so frequently quoted in the letters of our complaining correspondents, *i.e.*, 'We can get it for you, but it must be ordered beforehand.' If the order be given the copy is promptly procured from the headquarters of the firm, and the difficulty is got rid of; but the object of this appeal to our readers is to so increase the number of purchasers of the *B. J.* at railway bookstalls that there may be no trouble in procuring a copy at a moment's notice and at any time.

To establish so important an outlet for the circulation of the *Journal*, it needs only that a sufficient number of copies be in regular demand at railway bookstalls, and the thing is done. We should at once secure an increase of several thousands to our weekly circulation, and readers would experience none of the annoying 'waits' and 'late deliveries' of which we hear so much.

When it is borne in mind how great a number of our readers are engaged in business in large towns, and, to be bee-keepers, are perforce compelled to reside some distance outside, necessitating a journey by rail daily, it will be seen how convenient a place the railway bookstall is for the bee-keeper to drop his penny thereon and carry off his *B. J.* to read on his homeward journey. If we can but induce this particular class of readers to adopt our suggestion, a chronic source of complaint will be removed, and we trust it will not be unsatisfactory to them to know that the benefit to ourselves will be so considerable.

It is a source of some wonder to us where the very large number of copies sold by the firm in question go to, considering the difficulties in distribution shown to exist; but once let these difficulties be removed, and what has long been a source of annoyance to readers will 'go' with them.

The above remarks apply, of course in a lesser degree, to the *Record and Adviser*, and we hope soon to see the day when both the weekly and monthly bee papers will be as easily obtainable at railway bookstalls as any daily or weekly journal.

BRITISH BEE-KEEPERS' ASSOCIATION

All communications to the Secretary forwarded from this day to Thursday next (26th), should be addressed to him at 1 Wake Street, Plymouth. The Secretary will be glad to receive, by parcels post or otherwise, consignments of flowers suitable for decorating the Honey department at the Plymouth Exhibition. Bee-keepers can assist the Committee very materially in this way. Carriage will be paid on such consignments. They should reach Plymouth about the 23rd, 24th, or 25th inst.

USEFUL HINTS.

Weather.—There is nothing very favourable to report in the weather outlook. Since our last 'Hints' appeared a good deal of time has been lost to the bees by the very uncertain character of most days. Morning hot, afternoon torrents of rain; dry, but dull and cool: fine, but cold wind. These have been the ever-recurring weather reports for as much as has passed of the month of flowers, and, in consequence, we were not surprised to find our own bees, on paying them a visit a few days ago, making very little progress in storing surplus. This did not cause much concern, for the date (14th inst.) was still two days behind the orthodox 16th of June, which, when in the north, we have always associated with the commencement of honey gathering in earnest, and we saw no white clover about, 'wasting its sweetness' unvisited by bees. There is still plenty of time for bees to do very well, so it only remains for us to trust that summer cannot be delayed in reaching us much longer, and to 'hope on.'

Absconding Swarms.—A correspondent writes asking what he is to do with his bees under the following circumstances:—'I have a frame hive of nine frames; on May 21st I added another frame with foundation, and put on sections; on May 23rd the bees swarmed, and, being away from home, I lost them. On June 7th they swarmed again. I got them nicely in a hatbox, propped it up and left them, intending to hive the swarm in the evening, but on going to the box I left at 5.30 the bees had gone. On June 10th they swarmed again, and my brother got them, and put them in the frame hive fitted with foundation, but on going to the hive in the evening I found they had left again.' The question, 'What am I to do?' &c., has, to old bee-keepers, something half-comical in it in such a case, and yet how natural for one inexperienced to make the inquiry under the 'circumstances.' We are sorry to have so little comfort to offer. The bees have gone, and nothing that can be said will bring them back again. We may, however, give a few 'hints' on the subject of absconding swarms, which will help our correspondent and others in the future. Speaking in a general sense it may be said:—1. If a swarm is *supposed* to have issued from a hive without the bee-keeper being certain, he must listen at the hive eight or nine days later for 'piping.' If the well-known sounds are heard in the evening by placing the ear close against the wood of the hive, it is certain a swarm has come off, and that, if no loss of population is apparent, it is safe to assume that the old queen has met with some accident, causing the swarm to return to the parent hive. 2. If a swarm is hived in a skep, and, being left till evening before hiving in the frame hive, the bees are found to have deserted the skep, in nine out of ten cases the queen has either not come out with the swarm at all, or has been injured in hiving, or else she has dropped on the ground unable to fly, and may be found near the hive surrounded by a dozen or so of bees. 3. If a top swarm with its queen deserts the skep after hiving, and is captured after an attempt to 'make off,' a frame of brood from the parent hive should be given, and will usually ensure its remaining where placed. 4. A deal of anxiety will be saved in hiving swarms if the queen is carefully watched for. Once she is seen to enter along with the bees it is seldom further trouble is required, unless downright carelessness on the part of the bee-keeper causes the bees to dislike the home prepared for them. 5. Beginners should always defer hiving swarms in frame hives till sundown on the day they issue: the skep with swarm in it being placed on the spot the frame hive is to occupy. After some experience has been acquired it is better to carry the swarm to the frame hive at once, and if a quart or less of the bees can be thrown down in front (a very easy thing to do when you know how), and these are started 'running in,' the bulk may be dislodged at nearly two feet away from the hive front, so as to give plenty of travelling space for the bees, and a good opportunity of seeing the queen. We usually throw the bees from the skep in three or four successive lots, and so ensure a clean run in without allowing them to cluster across the front of the hive. 6. Finally, much may be done to avoid absconding swarms if the bee-keeper will but take the common-sense precaution of having his hive properly prepared for the bees. A clean, sweet, and wholesome domicile, covered down close above tops of frames, is never refused by a swarm properly introduced into it: at least that is our own experience, and it is a curious thing to read of the frequency of absconding swarms in the hands of some when we can state as a positive fact, that during the whole of our twenty-five years of fairly extensive bee-keeping, we have only had one swarm abscond from us, and that one settled on a slim branch of a high tree, quite out of reach. Some American bee-keepers have propounded the idea that hiving swarms on the stand occupied by the parent hive, or, as usually termed, 'on the old stand,' has a tendency to cause absconding. We have no data by which to confirm this theory, and would be glad to know if the same thing has been noticed in this country.

Midsummer Breeding.—It is well bee-keepers should remember that the brood chamber becomes of minor importance when the longest day has passed, and there is no need for any anxiety with regard to queens having egg-room or breeding-space after that time. Excepting where importance is attached to a heather harvest, all the work of the season will be practically over by the time bees bred from eggs laid subsequent to Midsummer Day are fit to share in the labour of honey-gathering. The whole attention bestowed on well-regulated and non-swarming hives may therefore be devoted to surplus chambers for the coming six weeks, and, as a considerable check has been put on swarming by the rain and cold of the last fortnight, we may expect to have a very lively

time if hot weather should suddenly come upon us, unless plenty of room is given to the bees. Along with room, free ventilation should also be attended to if swarming is to be minimised.

Treatment of Swarms.—If the advice given on page 266 on this subject has been followed, early swarms of this year will be in fine condition for gathering, but those left to shift for themselves will have fared badly, we fear. The idea of feeding swarms in June is one of the 'notions' which excite the special ridicule of those who condemn everything modern in bee-keeping; and yet what a return for the outlay of a shilling will that amount spent in sugar on a swarm of bees in the last three weeks yield, which, without such help, would have been now about starving for want. We therefore again repeat the words, 'Don't neglect your swarms,' and advise a continuance of feeding until the return of real bee-weather.'

Excluder Zinc.—It is to be feared that queens will have travelled into surplus chambers during the cessation of income unless prevented by the use of excluders. Mischief of this nature is, however, less felt in sections, as any spoiled ones may be weeded out, but in working for extracted honey a queen may spoil a whole box by filling half-completed combs of honey with brood in a few days such as we have experienced lately. In view of this it is very satisfactory to know how generally zinc is used below frames for extracting, and we have a growing presentiment that it will come into nearly as frequent use below sections before many years have passed.

As we write (16th) there is good promise of a favourable change in weather, so, in the somewhat vague but expressive words of the old bee-keeper we say, 'Send it may come.'

ABOUT BEE-KEEPING.—II.

By the Wife of a Bee-keeper.

My dear M.,—You will, no doubt, think my last letter did not enlighten you much about the 'art of bee-keeping,' and to some extent you are right, though not altogether so. The 'art' cannot be acquired without a certain amount of introduction, and why some beginners fail is because, knowing a few of the chief facts, they think it an easy matter to 'manage' before their knowledge is sufficient to enable them to act when the bees do not behave exactly as they expect. An eminent lady bee-keeper once said, 'Bees do nothing invariably!' Quite true! but their variableness, extending as it does only a short distance on each side of the rule, can be met and provided for by the modern bee-keeper, and before any one can claim to be a *good* bee-keeper it is absolutely necessary to have some knowledge of the natural history of the bee. This part of the subject is a very wide one, and can only be touched upon in the short space of a letter. Sufficient may be said, however, to answer the present purpose, and should you at any time desire to go further, I shall be glad to recommend the works of one or two of our best modern apiarians for your perusal.

To begin then. A colony of bees in the summer season consists of a queen, or mother-bee; a number of drones, or male bees; and many thousands of workers, or undeveloped female bees, as they are generally termed.

The Queen, or mother-bee, is a perfect female; she lays all the eggs, and is really the mother of the hive. In appearance she is long and slight compared with the others, and her wings are short for her length. Like the worker, she possesses a sting, but it is used only on very rare occasions. As she wanders about the combs in the hive the bees make way for her, and she can often be detected when the hive is being examined by the bees around her all facing towards her as she passes to and fro on the combs. While she is in the hive work goes on steadily, and all seem contented. Should she die, or any accident cause her absence from amongst them, the bees soon realise their loss. There is a great commotion, work ceases, and restless agitation takes its place, the bees running all over the front of the hive in their search, plainly showing to the bee-keeper that something is wrong. If the queen should return, work is soon resumed, and all goes on as before; but should she be lost altogether, in a short time the workers set about filling her place. This they do in a marvellous manner from a worker egg or very young grub, breaking up several workers' cells, and constructing a queen-cell in their stead. Here the young grub or larva is fed with strong, specially prepared food, called 'royal jelly,' and the perfect insect, transformed from a worker into a future queen, emerges from its cell ready to take its place at the head of the colony in fifteen or sixteen days. This power of changing the sex of the bee is one of the marvels of bee-life.

A queen in a state of nature usually lives for four or five years; but bee-keepers nowadays are apt to keep them at work rather on the high-pressure system, so they generally begin to fail after the third year; indeed, it is considered good practice to renew queens every two years.

The Drone, or male bee, is in appearance much shorter than the queen, longer than the worker, and much stouter and stronger built than either. It is stingless, does no work (unless keeping up the temperature of the hive by his presence therein be considered work), and does not even feed himself, the only apparent object of his existence being to propagate the species. While the sun shines and honey is plentiful drones lead an easy, pleasant life, taking their daily flight about noon, and creating quite a commotion in the apiary by their noisy hum. A curious feature of drone-life is that out of the hive they are never known to alight. They fly off with great swiftness, sometimes to a considerable distance, but return without alighting on either flower or leaf. The only exception to this rule is at swarming-time, when they join the cluster with the rest of the bees. Evil days for them, however, come at last: the flowers begin to fail; the supply of nectar ceases; the workers have time to think of something else than gathering and building, and the poor drones are turned out

of the hive without mercy. I have seen a drone dragged out of the hive in spite of his size and strength—it took two or three workers to do it—and thrown over the flight-board in front. He was not much hurt, and made an attempt to re-enter. The door was too well guarded, however, and he was seized, dragged to the edge, and thrown over as before. Each time he made a fresh trial he was treated in the same way, and at last he gave it up in despair, and I left him on the ground in front of the hive where he would remain till he died. It is very pitiful to walk round the apiary at this time: the big, helpless fellows, who have known nothing but pleasure and prosperity, are no match for the active, well-armed workers, and, struggle as they will, their career is ended. It is nature's law, however, and must be right. The drones have fulfilled their mission, and their support in the hive all winter would be a great drain upon its stores, and might imperil its very existence.—*Co-operative News.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements.*)

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

APPLIANCE DEALERS.

[222.] It never would have entered my head to put any experience of mine before you, but that your defence of the 'dealers' in the *B.B.J.* prompts me to trouble you with some evidence that there *is* another side of the picture. I was an 'old-fashioned' bee-keeper until three years ago, and if I have sometimes experienced a twinge of regret for having adopted the modern system, the dealer has been the cause of it. The first year taught me never to order anything just when it was about to be needed: but though I have since followed just such a course as you very rightly advise, it has not saved me from annoyance. The general business methods of dealers in bee-appliances (I speak from experience of three) appears quite different from most others with whom I have had transactions during twenty-five years of business life. Chaotic confusion reigns in place of business order if Mr. —— keeps me waiting (in mid-winter) four months for frames when my arrangements require them to come to hand in six weeks. The consequences of the next instance were not so serious, but they will be more apparent to you. Having ascertained that Mr. —— could supply me in September with two Carniolan queens, I sent him the cash, with instructions to 'let me have them as soon after the *first week in September* as convenient.' Over two weeks passed without acknowledgment, but at 6.30 p.m. on Saturday, the 10th August, the post brought me a letter saying that as I had sent sufficient to pay the August price for them, and as he had two good queens, he had sent them off per rail on Friday. I sent to station (two miles): luckily the agent was at home, and very curious about the strange box just placed in his care. I had then to hurry off to the moors (fifteen miles distant) for two hives, reaching home with them at five o'clock on Sunday morning. That was last year, and believing he foolishly thought to do me a favour, I did not complain: but what shall we say of his conduct this year? I asked the same party in February how much I should send him for thirty pounds of foundation cut to size. On receiving answer I at once forwarded cash, adding 6*s.* for a honey can, as per price list. When acknowledging the money, he ignored the 6*s.* On drawing his attention to it, he sent me a price list for 1890, in which I saw that the price had been raised to 7*s.* 6*d.* I sent him the balance, with the remark that I would rather he had said at once in plain English, 'You have sent too little,' when any difference would have been gladly sent. On March 3rd he expressed regret for the overlook, &c., and said I would find the cans he was now making were much stronger than the one I had previously (the can in question was a capital article.) On 28th March goods came to hand, but such a can! The bottom did not fill the space, and in spite of paint it leaked. The handles were only partially soldered, the lid a trumpery thing with each corner gaping. I never saw such a rubbishy article. I wrote asking an explanation, with stamp for postage. Two weeks afterwards he wrote saying to return it, and he would send another. I returned it on 16th April, carriage paid, and advised him by post. I have heard nothing of it since.

These are a few instances of the many troubles I have had with bee-appliance dealers during the past three or four years, and they lead me to think that some of the complaints that have reached you will be only too well founded, and that a word of advice from you to the dealers will not be out of place. For my own part, rather than have a continuance of past troubles, I would drop bee-keeping.—D. COCKBURN. *Bee Cottage, Pencaitland, N.B.*

[We gladly give insertion to your complaint, and there is no doubt you have been very badly treated by the dealers in question (whose names we charitably suppress). At the same time we have no hesitation in saying that there are dealers—and plenty of them, too—who pursue an entirely different method of business to that described. A little trouble in getting hold of the right men would ensure very different treatment. —ED.]

INVERTING SKEPS.

[223.] I think it may be of interest to know that I have just made a most successful transfer from a skep to a bar-frame hive by the method described by Mr. Samuel Simmins in the *B.B.J.*, No. 2004, of 21st February, 1889. I cut a hole four inches square in the centre of the bottom board of a hive which stood on legs, and just allowed the skep to be put beneath it. The skep was inverted and put underneath, the entrance-hole in skep being, of course, bunged up. For a few days there was no result, and I began to think there would be a failure, particularly as the bees found a way out between the edge of the skep and the under side of the bottom board. In a few days, however, the bees began to come up into the hive, in which there were frames of foundation, and one frame with some honey in it. About the tenth day I found the queen up and laying in the frame from which the bees had taken the honey. I immediately put a piece of queen-excluder zinc over the hole in the bottom board to keep her upstairs, and now she is filling the hive with brood as fast as she can, and in about a fortnight I hope to super. The skep I shall of course remove as soon as the brood in it is all hatched out, and also replace the piece I cut out of the bottom board of the hive.

I certainly consider this a simpler process than driving the skep until the queen is seen to go up, then throwing her with driven bees into a bar-frame hive, and placing skep on top of frames with queen excluder-zinc. — O., *Bury St. Edmunds.*

BEE-KEEPING IN SWITZERLAND.

[224.] A love for bees is, in one sense, a parallel with our love for home: it follows us wherever we go.

Now, as I have been pretty much debarred the pleasures associated with bee-keeping since my residence here, you will not be suprised that, having a few days ago an invitation to assist a friend of mine in opening his hives, I very readily availed myself of the opportunity of renewing my acquaintance with these interesting little creatures, which for many years had given me many an hour of honest pleasure. To say that my morning's work was a real treat would only convey a part of the enjoyment I derived; and as there were some points of interest new to me, I think it may not be unwelcome if I give a short account of it.

My friend has six standard bar-frame hives—just a nice number for an amateur. I was taken through the garden to what was originally, I suppose, used as stabling, with loft above, the building facing nearly due south. Ascending the steps I found a good-sized loft with room at one end, partitioned off and very neatly fitted up with extractor and the various *etceteras* necessary for successful bee-keeping.

The morning was gloriously fine, and the sun asserting his authority in a most unmistakable manner. What struck me at once was the delicious coolness of the room. The six hives were arranged along the front of the loft, and stood back some eighteen inches or two feet. Each hive had a large alighting-board outside, which communicated with the hive by a shallow trough some four or five inches wide, each covered with a piece of thick glass. This struck me as novel and interesting, as one could watch the busy little creatures going and coming; and in case of returning a swarm to the hive, the chances of securing the queen, if such were desirable, would be almost brought to a certainty, as the bees, entering by a comparatively narrow opening, would travel to the hive only one deep. I should explain that the front of the loft was fitted with weather-boards, with an opening of nearly two inches between each board, so that not only was a delicious breeze able to enter the loft, but by standing up against the front one could look right down on the alighting-boards and see all that was going on. Also one end of the loft was fitted with a large sliding shutter which we removed, admitting a flood of sunlight, although when shut there was still amply sufficient light entering through the front weather-boards to permit of manipulation: but the removed shutter provided a convenient place to shake off the bees that were on the sections.

Having thus briefly described the loft, let me now tell you of our morning's work; merely premising that one part of my treat consisted in finding that everything had its place and was kept there; and, secondly, everything fitted and interchanged as it should do.

My visit was on May 30th. I found the hives superb, some three tiers deep and lots of honey in all of them. My friend began taking finished sections on May 10th, and to-day we found the majority of the sections well forward, many of them ready for taking, and from one hive that last year gave ninety pounds we took thirty-four finished one-pound sections. What do you think of that for the 30th of May? I never had such luck in England, and should like to know how it compares with this season's takings.

I have before mentioned the delicious coolness of the loft and the subdued light coming through the openings in the weather-boards; also the full blaze of sunlight coming through the opening where the shutter had been removed—and the advantages of these arrangements were soon apparent in manipulating. The bees were most beautifully behaved; the coolness and subdued light, I think, helping them, while no sooner did a bee fly from a section or the open hive, than it was at once attracted by the sunlight and quickly made its way to the garden, and not a *single* bee annoyed us by flying *in* attracted by the honey, although row after row of finished sections lay in the trays.

Now contrast this with the experience of most of us, I expect, on taking sections on a blazing hot day. The perspiration standing on our foreheads, occasionally most persistently finding its way to the end of our nose or running into our eyes, until we feel half blinded; then

the bees, having no counter-attraction, paying us more attention than desirable, while the sections duly deposited on the tray beside us help to attract those bees who, being of a more practical turn of mind, pay their respects to those instead of us. And, however careful we may be, a certain amount of this sort of thing too often attends our outdoor manipulation. Any way, I never enjoyed a morning with bees more. I never manipulated with such comfort to myself, and I never knew bees so universally do just what one would wish them to do, and leave undone the many things that, alas! they too often will do, however much we may remonstrate with them against such conduct.—CEPHAS BUTLER, *La Casita, Lausanne, June 3rd*, 1890.

SELF-HIVERS.

[225.] After perusing the narration of success with the self-hiver by 'J. M. N.,' page 254 *B.B.J.*, I resolved to put three, which I had in readiness, on stocks that were heavily lying out. Sanguine of success, I kept them on for upwards of a week, to be chagrined by the bees (ignoring the comfortable quarters, well furnished with comb and foundation) taking flight, leaving the queens injuring themselves, physically and constitutionally, in their frantic and abortive efforts to follow through the slots. In my case the self-hiver has eventuated in a dismal failure. A gentleman of considerable experience, residing near, was similarly unfortunate: but in his case the queen managed to accompany the swarm by passing either through the slots or an imperfect junction with the hiver; however, the quarters provided were also ignored. I may add that in a fourth hive of mine, for which, fortunately, I had no hiver, swarming was assisted by supering with a lift of shallow frames, which were being well stored when I abandoned the hivers, showing that my experiment has proved a material loss in honey as well as injury to queens. Perhaps some of your readers who have tried the self-hiver will kindly furnish their experience.—A. P., *Hertford*.

[Self-hivers, like other things, must have their failures as well as successes recorded, in order to test what merit they really possess, and we hope to have reports of further trials. Our correspondent is disappointed at the failure in his case, and is, perhaps, reasonably enough, annoyed as well; but in justice to the 'new idea' we should like to ask if, during the week the hivers were on, all three stocks attempted to swarm, and if all three failed in the same way? We should also expect that stocks 'heavily lying out' would have both room and ventilation given them before applying the hivers, because the application of the latter would certainly cause overheating if applied to such stocks without precautions such as we have specified having been taken. There is a (no doubt unintentional) desire to write down the hiver in the tone of our correspondent's note which we cannot endorse. There is not much risk of queens being injured, as stated, and we have thought, and think so still, that if a plan of self-hiving swarms is possible, as American bee-keepers assure us it is, there is no plan more likely to succeed than the one under notice, provided, of course, that reasonable and proper precautions are taken. We therefore hope to have full reports of both sides, and a little fuller detail of the mode of procedure adopted, so that readers, as well as ourselves, may be enabled to judge of the merits and demerits of what we had hoped would prove a most handy contrivance for the use of bee-keepers away from home at swarming-time.—ED.]

THE BREHON LAWS.

[226.] I was reading the other day an account of the 'Brehon laws,' the ancient laws of the Irish, so called from being expounded by judges named in the Irish language *Breitheamhuin*, or Brehons. The following, relating to bees, is curious, and may interest some of your readers, as it certainly carries us back to the earlier ages of the Christian era:—

'Perhaps a more remarkable law is that of the Irish Brehon regulating the property in bees. Honey and wax must have formed a large portion of the wealth of those days, else the various contingent interests in a species of property so hard to fix as that in a swarm of wandering bees had never been calculated and laid down with such scrupulous nicety. In the first place, the bees themselves are protected by severe exactments against injury of whatever kind. Next they are to be left free, under heavy penalties, to choose their own place of swarming: 'to blind the bees' by casting up dust, or taking any other means to force them to descend and swarm on one's own land while they are flying out of the lands of another was an offence for which the punishment was no less than expulsion from the tribe and territory. The bees having voluntarily selected and settled on a tree, it then depended on the rank and privileges of the owner as well of the bees as of the tree they had chosen what was to be the portion of wax and honey reserved for each, and how long the original owner should continue to receive that share, as the bees in all cases ultimately became the property of him upon whose tree they had alighted. The commentator on the old text here complains very bitterly of the clergy, who, it would appear, were particularly fortunate in attracting such wandering swarms to their abbey orchards, where they did not scruple to cover them with sheets, and take other unfair means of securing their stay among them. If the bees, however, were found beyond the sound of a church bell or the crowing of a cock, in the woods or meadows, the finder was entitled to the whole proceeds excepting a ninth part, which he had to pay by way of tribute to the chief. If these laws have been rightly translated, the old Irish must have possessed the secret of abstracting the wax and honey without destroying the swarm. In no other collection of laws are the regulations regarding this species of property so copious; in fact, it would require some pages to explain the minute and complicated decrees of the Brehon law regarding bees alone.'—C. BRERETON, *Billinghurst*.

HIVING SWARMS.

[227.] About two years ago, I wrote you a letter describing my mode of hiving swarms of bees by suspending the skep over the *settling*-place, instead of following the old plan of sweeping or shaking the bees into the skep. But I always found the bees go up best without any interference, and never had to adopt the plan of your correspondent, Mr. Barkitt, of 'tickling the mass with a feather dipped in diluted carbolic' (see issue of May 22nd).—EDMUND J. JONES, *Clydach, Swansea Valley.*

ASSISTING EXHIBITORS.

[228.] The Hants and Isle of Wight Bee-keepers' Association, through their Hon. Sec., the Rev. W. E. Medlicott, Swanmore, Bishops Waltham, having issued their schedule for the Show to be held under the auspices of the Royal Counties' Agricultural Society at Winchester, on July 8th to 11th, have adopted a good idea in Class 13, viz., 'For the best six bottles of extracted honey, to be shown in bottles of a special pattern to be supplied by the Society.'

This will give bee-keepers in outlying districts an opportunity of having supplied to them the best bottles in the market for sale purposes packed in a case, sent to them, carriage paid, for the small sum of two shillings; which, when filled, may be dispatched to the show through the parcel post, saving both time and trouble: and enabling the many to compete who are now prevented and also encourage cottagers to take more interest in shows and the consequent advancement in bee-keeping.

The Committee of Management for Shows should not forget, in preparing their schedules, that it is *quality*, not *quantity*, that is required from the exhibitor, and that no opportunity should be lost of increasing the number of competitors by arranging the quantities so that the weights may be within the limit of the

'PARCEL POST.'

CLEARING SUPERS.

[229] I have tried Webster's new super clearer on several occasions, and always with complete success. The simplicity of slipping it underneath in the morning and removing the super in the evening, with not half-a-dozen bees, is a pleasant contrast to some of the 'warmings' I got last year, taking supers off. I consider it a capital invention, especially for timid bee-keepers.—E. M., *Castlemans, Twyford.*

CARNIOLANS AND SWARMING.

[230.] Benton's queens and their swarms have been rather troublesome to hive; one lot persisted in leaving the straw skep, time after time, and going back to the hedge on which they first clustered till eight p.m.; but before they clustered at all they had to be brought down with a syringe as they were making off to the woods. The other lot never clustered at all, but scattered all over the fruit-bushes around; but, chancing to see the queen, I shook her and a few bees into a skep and left the others to follow. This they did, and at night I hived them as usual in a frame hive. Next morning I found some still clustering outside at the entrance. An hour or two afterwards I found a very small swarm just about to settle on the top of another frame hive. I hived them, and saw the queen go in the skep. Not knowing where this miniature swarm came from, I thought it must have been a queen and a few bees escaped from a hive where I had been raising queens, so I kept them as a nucleus till the queen was fertilised. Now comes the singular part: I afterwards went to the hive I had put the bees in the night before and found them queenless. I should have thought they would have joined the others or returned to the parent hive, as there were neither eggs nor brood. How was this?—ALPHA.

[Obviously the queen was with the 'small swarm.' —ED.]

BEE SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

June 23–27.—Royal Agricultural Society, Plymouth Meeting. Entries closed May 1st. Secretary B.B.K.A., J. Huckle.

July 8–11.—Hampshire B.K.A. in connexion with the Royal Counties' Agricultural Show at Winchester. Hon. Secretary, H.B.K.A., Rev. W. E. Medlicott, Swanmore Vicarage, Bishop's Waltham.

July 16–17.—Notts B.K.A. in connexion with the Notts Agricultural Society's Show at Wollaton Park, Nottingham. Entries close June 21st. Schedules, &c., A. G. Pugh, Hon. Sec., N.B.K.A., 45 Mona Street, Beeston, Notts.

July 24–25.—Lincolnshire Agricultural Society, 25*l.* in prizes for honey, hives, &c. Entries close July 8th. Stephen Upton, St. Benedict's Square, Lincoln.

July 25th - 26th.—Wilmslow and Alderley Horticultural Society, 7*l.*, and silver medal in prizes for honey. Open to Lancashire and Cheshire only. Hon. Sec., T. D. Schofield, Oakfield, Alderley Edge. Entries close July 12th.

August 8–9.—Bramhall and Woodford Horticultural Society. 8*l.* 10*s.* and silver medal in prizes for honey, open to Lancashire and Cheshire only. Entries close July 26th. Lists from W. Slater, Rose Cottage, Bramhall, near Stockport.

The Windsor and District Branch of the Berkshire B.K.A. will hold their annual exhibition in the Home Park, Windsor, early in July. (The date remains to be fixed by Her Majesty the Queen.) For entry forms apply to the Hon. Sec. Show Committee, W. S. Darby, 1 Consort Villas, Arthur Road, Clewer.

Queries and Replies.

[95.] *Swarming in East Somerset.*—May I give a little of my experience since last winter, through which I brought my sixteen stocks very successfully with plenty of stores, two of them not fed being as forward as any? On May 21st a regular swarming fever set in. I got a swarm 6¼ lbs. in weight, which I returned; it issued again the following day, and I hived it on ten frames with full sheets of foundation. Next day two more swarms came out: they also weighed 6¼ lbs. each. On the 25th another 6-lb. swarm at 8 a.m., and still another in the afternoon, weight 7 lbs., which is the largest I have had as yet. These I returned, the largest speedily filling a box with 7 bars (2 inches apart), all of which are now half sealed over. 1. Should I add shallow frames under, or standard size over? On the 26th another swarm, nearly 6¼ lbs., which I hived, and the queen commenced laying on the second day. On Sunday, the 1st, another 5-lb. swarm, which I did not find till about 1 p.m. next day. To-day (9th) I took 21 splendidly filled sections from one of my hives, and left about 18 more or less sealed. I shall work half my hives on the plan of 'underpinning,' and half the other way. 2. Do you understand bees clustering in the sections, but not building comb? Will give further experiences later on. —Amateur Bee-keeper, *High Ham, Langport.*

Reply.—1. Personally we should give boxes of shallow frames *over*, as we prefer them to standard frames for extracting in tiering up. 2. Bees sometimes do this when they have made up their minds to swarm; at other times it is through lack of income.

[96.] *Size of Brood Nest.*—Referring to your conclusions as to size of brood nest in 'Useful Hints' of 5th inst., do you recommend confining the queen with excluder zinc to ten frames, and if so, would there be any danger during the honey glut of the combs in this storey being gradually filled with honey and the queen left in compulsory idleness during the remainder of the season, or until circumstances caused the workers to remove it to upper storey?—J. G.

Reply.—No danger at all. So far from brood chamber 'being gradually filled with honey,' the object is to keep brood chamber as near as may be filled with brood during the season, and to have all honey stored above. Bees with ample storage room above, and in full possession of surplus chambers, will never fill the brood chamber with honey.

[97.] *Bacillus Gaytoni.*—Will you kindly give your experience of *Bacillus Gaytoni* in next issue of *B. B. Journal*, as there seems to be a difference of opinion among bee-keepers down here, such as—1. Cause. 2. General symptoms. 3. If it is infectious, or if the chief fault lies in the queen? My own experience is that it is infectious, but strange to say only those having a trace of Italian blood are diseased. A frame of brood taken from an infected stock and given to a sound one infects that also.—Mayo, *co. Mayo.*

Reply.—*Personal* experience we are glad to have had very little of, and in the only two cases where *Bacillus Gaytoni* troubled us we got rid of it by *re*-queening. As to the (1) cause we cannot explain. 2. (Symptoms.) There are usually a number of the bees presenting a shiny black appearance as if polished. A few dead bees are noticed on the alighting-board every morning, and during the day odd bees are seen to run out and fall on the ground unable to rise. They rub themselves (it might be called 'scratching') all over; and the constant drain on the strength of the colony caused by daily deaths, more or less in number, prevents any progress, and gradually the population grows less till it dies out. 3. Yes: but not so infectious as foul brood, and it is believed that the main fault lies with the queen.

[98.] A man living about 600 yards from me has three skeps of bees which seem doing well; he has asked me to buy them for 20*s.* each. 1. If I buy them could I stop the bees from going back to the old spot by giving a little food, and fumigating the stands with carbolic acid, or what do you advise? 2. If I bought them I intended putting each one of the skeps on the top of a box of ten or eleven frames, allowing them to breed in box of foundation, and make a super of the skep, removing the latter at the close of season. Will this plan do? Now, sir, I ask your advice about the whole job; and 3, if price is too high? Will it be safe to move them? Thanking you for your past advice on bees, which has caused much more interest to be taken in bees by our flower show committee.—T. J. Horsley, *Wolverhampton.*

Reply.—Bees cannot be moved 600 yards at this season without great loss, and feeding and fumigating will not lessen the loss. They can only be moved safely by taking them away for a considerable distance (over two miles) for ten days or more, and then returning them to your garden. 2. Yes. 3. We do not undertake the office of bee-valuers for obvious reasons.

[99.] *Super Foundation for Brood Frames.*—1. May I with safety use the thin foundation comb (used for sections) in the bar-frames, as, though dearer per pound, it is cheaper per sheet? 2. Is it not better to use *whole* sheets of foundation in the frames to save time to the bees and honey, rather than the narrow strips, or even half-sheets, that some adopt? 3. In the case of whole sheets, how are they best kept quite plumb in the frame, so that the spaces between may be uniform throughout?—A Novice, *Castleblaney.*

Reply.—1. Thin foundation will not do at all for brood frames. 2. Yes: it is better to use whole sheets, but great care is required in fixing the foundation firmly in the frames. It must be either 'wired,' or else held in position by 'fixers,' as described on page 269 of *B.J.* for

June 5th. If not secured by one of these methods the foundation will sag or twist, and perhaps break down altogether with weight of the bees and heat of the hive.

[100.] *Destroying Ants.*—I find a nest of ants under a slate in front of alighting-board of one of my hives. Will you kindly say would it be well to remove them, and how it is to be done?—Wm. P. Lowe, *Beltarbet.*

Reply.—By all means remove the ants at once. They may be destroyed by pouring paraffin or turpentine on the nest and digging out.

[101.] *Foul Brood and Ligurian Bees.*—I've sent herewith a piece of comb for inspection. The stock it came from is a very strong stock of Italians, covering twenty-seven combs. This piece of comb is the worst I could find. Two combs similar I've taken away to destroy: from the rest I've cut out every affected cell I could find. I should be glad if you would kindly tell me, 1, whether you consider this a bad, medium, or mild case. I have camphor in the hive now, and have sent for naphthaline to try. I should very much like to save the stock, it has been such a good one for honey. 2. Is it safe to try more than one remedy at a time—for instance, naphthaline and formic acid?—J. P. S. Ashton, *Penryn.*

Reply.—1. The comb sent is affected with foul brood of the malignant type we have before seen in stocks of Ligurian bees, so that we call it a 'bad case;' you may endeavour to save it, and if the bees cover the whole of the twenty-seven combs, as stated, it increases the chances of success: but at the same time we may be pardoned for saying that, were they ours, and healthy colonies were in close contiguity to them, we fear the Italians would receive a 'short shrift.' 2. It might be *safe*, but certainly not advisable; any more than it would be to have two medical men prescribing for the same patient, quite independently of each other.

[102.] *Pollen-clogged Combs.*—I have a stock of bees that lost its queen early in April, and while they were raising another, the workers continued carrying in pollen, even after all the brood had been sealed over, to such an extent that now a large number of the cells are clogged with pollen, I should think nearly one-third of some of the combs on both sides. One comb I noticed quite three-quarters occupied with pollen or sealed honey. Thus the queen has not her proper room for laying, and I find eggs and brood even on the outside combs. I have inserted two frames of comb outside the others, as I did not want to risk chilling by putting them between any with eggs. This I did last Thursday, at the same time uncapping all the honey in what had been an outside comb. On Saturday I found that all the uncapped honey had been moved to the new outside comb, and eggs were being laid in its place, and I proceeded rapidly to uncap all the other honey stores, and placed behind the outside comb six sections in a frame, with excluder zinc between. This I hope will induce the bees to clear out more of the combs, thus giving room for breeding. I write to ask you two questions:—1. Did I do right in thus uncapping the honey stored, and is it likely to have the desired effect? 2. What had I better do about the cells clogged with pollen, as this takes up so much room? Or had I better leave the bees alone to manage this as they think best?—East Dulwich.

Reply.—1. Yes. 2. Just leave the bees to use up as much of the pollen as they require, and at close of season any combs rendered useless for brood by being quite pollen-clogged may be removed.

[103.] *Loss of Queen.*—1. I enclose a queen and drone, both dead. They are from a Carniolan stock, strong and healthy. I found the queen lying dead outside the hive to-day, and I would like to know whether she is a virgin queen or the old one which I got from Frank Benton last autumn. From the fact of the drone lying dead close to her I thought that perhaps she might be a virgin queen and that the other one had been lost. 2. How near clover fields must I be for bees to get any great benefit from them? Bee-keepers down here are all flourishing and in great expectations of a good year. There have been few losses and stocks are well forward. Blossom of all kinds has been abundant, especially hawthorn. With every good wish for the continued success of the *Bee Journal.*—W. G. C. G., *Annan, N.B.*

Reply.—1. The queen sent bears no trace of a Carniolan, though the drone is a well-marked specimen of that race. She is an old black queen in our opinion, and may have been from another hive, killed while endeavouring to enter the Carniolan stock. At all events you may examine the latter and see if the presence of brood, or maybe the queen, will clear up the mystery. In any case she is very unlikely to be the one you had from F. Benton. 2. If a good breadth of clover is growing a half or even three-quarters of a mile away bees will be benefited more or less. Of course, the nearer it is the more it will be visited by them.

[104.] *Swarms Uniting.*—Thanks for your kind reply to my letter, which you will find in *B.J.* No. 60. I received the two swarms quite safe, and we hived them on Friday morning at five o'clock. As I am a beginner this year, I took the advice given on p. 231, *B.J.*, by throwing the bees on a board in front of hive. I did as directed, and they were both nicely settled down at seven o'clock, when I went to business. On my return home in the evening at eight o'clock, I was told that the bees (No. 2) had 'gone off,' and on examining the hive I found the combs had only half-a-dozen bees on them, not more. What was I to do? I thought this was a very bad beginning in bee-keeping for me, as I had given 25*s.* each for the swarms. While thinking what to do, my attention was drawn to No. 1 hive. What a row they were making! there was the alighting-board covered with bees fanning with all their

might and main, so I conclude that the queen in No. 2 hive had been lost, and the bees had gone into No. 1 hive, which I found to be the case, for on examining them by lifting the quilts the frames were covered with bees as thick as they could crowd together. I gave them as many frames as I could put in the hive, viz., ten, and left them for the night, as it was quite dark; they have not altered since, so I want to know what *you* would do under the circumstances? I think they are sure to swarm as soon as they can get another queen; shall I get the No. 2 hive ready, and try the *self-hiver*? If so, where can I get one from, and about what time should you expect them to swarm? I am feeding with four holes, and have propped up the body-box about a quarter of an inch with wedges to allow more air to pass in, as there are always a great many fanning on the alighting-board.

Last month I drove a skep of bees, and put the combs out of the skep in frames, and as they are rather crooked, in fact, all shapes and forms, and joined together by the bees, we cannot manipulate them. I should very much like to get rid of such combs, but how I don't know. I have the hive (a combination which holds about eighteen frames) parallel to a wall, and so have made the entrance at the side; do you think this will make any nuisance of any kind to the bees? The bees now occupy about nine frames: do you think if I put a frame of foundation every now and then in at one end, and move the frames they now occupy towards the other end every time I put one in, would the bees leave the old combs and work out the foundation? Could I prevent them swarming (this year) with this hive? If so, I should be glad if you could tell me how.—A Lover of Bees, *Leicester*.

Reply.—It is not likely the bees will swarm again at all this year. Give them surplus room for storing honey in, and you may have not lost much after all by the two swarms uniting of themselves. Double swarms sometimes gather very large quantities of honey, and if the present year turn out a good one, you may reasonably expect a good harvest. Referring to the second hive, the plan you propose for renewing the combs will work all right, and giving the bees plenty of comb-building will have a tendency to prevent swarming.

[105.] *Responsibility for Stings.*—I have kept bees for some years, and I have never been in trouble about them until the last week, when a child next door to me was stung under the eye, and the parent has made a fuss about it. If he takes the child to a doctor, can he make me pay for medical attendance? Last year the same child was stung, but he did not take any notice of it. The bees stand in my own garden, but my neighbour's path runs up at the back of my beehives. He is a little spiteful towards me; why, I don't know. By answering this question through the *B.B.J.* you will greatly oblige —A Constant Reader.

Reply.—Probably by the time this reply is in print all traces of the sting will have disappeared from the child's face, so you need have no concern about this particular mishap. It is, however, very desirable for bee-keepers to be on good terms with their neighbours, if possible, and so we would suggest that you take all possible precautions to prevent a recurrence of the mischief. A *solatium*, by way of a jar of honey, generally has a good effect in these cases. The only law which affects the case is that no one may be allowed to keep anything proved to be a nuisance and a source of danger to those around you; and it is not easy to prove this of bees *properly managed*.

[106.] *Adding Section Crates.*—I have six bar-frame hives with section crates about filled, a good many are sealed, and I would like a little advice whether I should take them off when finished, or put another crate on?—W. Jardine, *Holmrook, Cumberland*.

Reply.—Under the circumstances add another crate *below* those now on, and nearly completed sections may be removed in a few days, or when quite sealed.

[107.] *Surplus Queens.*—I have purchased four fine swarms, some seven miles from here (south), and the friend who sold them to me told me he 'prevented swarming by killing the queens and making the bees go back to their hives.' I was there late on Saturday evening, when I returned with my bargain by rail, and during the conversation I remarked it was a pity he should kill his queens, when he offered them to me if I would send boxes for them. Now an idea has struck me that I can make nucleus swarms with them, because I think they would be second-year queens and just fit for that purpose. I would thank you kindly for advice on this particular point—Can I make nucleus swarms with queens taken from hives under these conditions with any chance of success? or would you rather form nuclei, in the first instance, from queen-cells instead? I am aware of the difference between the hive queen and the nucleus queen, but would like your advice.—Henry L. Smith, *Winchester*.

Reply.—We could hardly take kindly to discarded queens, unless your friend acts on lines entirely his own. You must credit him with the possession of common sense, and no bee-keeper with even a moderate share of this useful commodity would kill off valuable queens promiscuously as stated. Of course stocks may be divided in autumn, when fertile queens are on hand to place at the head of the queenless portions, but each lot must be left strong enough to winter well, or it will be labour thrown away.

[108.] *Increasing Stocks.*—Kindly advise a beginner as to when to commence increasing stock. I have two stocks, which I wish to make into three by next year. No. 1 was a stock of five frames (purchased May 7th); the five added frames, filled with foundation, being nearly covered. No. 2, a good swarm (purchased May 22nd) are now on ten frames, and are

working well. Is it advisable to attempt this increase, or wait for a swarm next year.—B. C. WHITFIELD, *Fishponds, Gloucestershire.*

REPLY.—You may readily make No. 1 stock into two, by dividing, at the end of July, when the main honey-gathering for the year will be about over.

Echoes from the Hives.

School-house, Stratton St. Margaret, Wilts, June 7th, 1890.—Before I 'echo,' might I have a 'groan?' I should like to suggest that queries relating to 'foul brood' should have precedence of all other questions. *Nil desperandum* is a favourite motto of mine, but we are told that 'hope deferred maketh, &c.' I have a personal feeling on the matter, as I am anxiously expecting an answer in *B.B.J.* on Thursday morning next. Since my last the weather has been against much storage: but things are now very 'fit.' The dull weather and frosty nights have stopped swarms issuing, but I expect will ultimately increase them. I hear of several issuing and returning. The following bit of experience has puzzled me somewhat. I put a cast behind a dummy which was raised, and left them to go under it on to the frames. This they declined to do, and built a piece of worker comb on to the quilt which covered them, and used entrance to hive passing under combs. I put them right on the combs on May 25th, and they started queen-cells. I could not see queen, so I gave them a new comb, with eggs and honey, on June 3rd, cutting out the queen-cells. Now (June 7th) presto! all the eggs have disappeared, the immature queen-cells have re-appeared. No sign of brood or eggs. Do you think they had a virgin queen, which has got lost? But what have they done with the eggs, and why?—COL.

[When a swarm or a cast with its queen has settled down, in no matter how inconvenient a part of the hive, the bees nearly always start working there; for instance, if quilts are carelessly forgotten, as we have known them to be, the swarm will ascend into the hive roof, and build combs there, though the frames below are fitted with comb foundation and every convenience. In point of fact, once the queen has joined the cluster, usually at the highest part of the shelter offered them in the form of a hive, she does not move, nor do the bees make any effort to induce her to 'come down' into more comfortable quarters, though they may have to pass through such to reach her. Referring to the after-proceedings of the swarm, one of two things may have happened to cause the loss of the queen. She has met with some mishap when the bees were being 'put right' on May 25th, or else she has been lost on her mating trip. It is not at all unusual for bees to refuse to build queen-cells on eggs given them.—ED.]

Honiton.—My best stock has been lost through drone-breeding queen, but I hear from all sides that stocks are strong, healthy, and forward. A very near neighbour of mine had a strong swarm on May 27, after the first crate of sections was almost completed. Is this not very encouraging? Thanking you for answer I have just seen *re* queen in this week's *B.B.J.*, I might add that the queen was breeding well last autumn after I introduced her, and conclude she must have been balled, and another hatched, as you suggest. —F. J. LILLEY.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

W. C.—Foul brood in worst form. The hive as well as combs should be destroyed if not of much value, but in any case must be thoroughly disinfected before using again.

STEWART S. BATE.—*Hiving swarm.*—Your method of hiving swarms, though excellent and well carried out by yourself, is so nearly the one adopted by most bee-keepers to-day, 'who know how to manage,' that it is hardly worth occupying space by printing it in detail. And though the sum realised, 6*l.* 10*s.* in two years from one stock of bees, is very good, it scarcely reaches the amount some of our best bee-keepers have had in that time. Still it is very creditable, and we must congratulate you on your success.

W. F. TRONSON (Morchard Bishop, Devon).—The queen sent, though an adult, has never been fertilised.

THE

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Editorial, Notices, &c.

BEING WATCHFUL.

By way of supplementing the word or two of warning to bee-keepers we thought it advisable to give in our monthly issue, the *Bee-keepers' Record*, it may be well to make a few observations here on the same subject. There is no doubt that in some parts of the country matters have become too serious for neglect when worker brood is being cast out of hives in June, and when that curious phenomena of bee-life is known to point to a condition of things within the hive which clearly indicates impending want. To the novice in bee-keeping such a state of things is quite incomprehensible—he cannot understand it; it is so entirely out of time with the visions of 'honey rolling in'—ever present to the mind of one who, as yet, has had little experience save that which comes of reading—that he entirely refuses to accept the hint of a neighbour wiser than himself to 'feed the bees a little,' and he writes to the editor of his bee-paper to ask what it means. It simply means 'being watchful;' not in the direction of constantly examining hives to ascertain their internal condition—that would perhaps be as great an error as leaving them altogether unthought of—but watchful of the time when bees are passing day after day in enforced idleness, no food coming in, and sometimes as many as 50,000 or 60,000 mouths to feed daily! A moment's consideration of this too often overlooked fact will show how absurd it is to forget that this heavy outgo must inevitably end in disaster to the best colonies, if by any lack of watchfulness they are allowed to suffer from neglect at such a time.

We often think how much valuable information on bee-matters would be acquired if readers could, and would, give a little more study to our correspondence and 'query and reply' columns. A fund of useful knowledge may be gathered from a regular perusal of the varying reports of successes, of failures and disappointments, of unexpected difficulties, and of the various ups and downs of bee-keeping recorded therein. The man whose interest in the pursuit never travels beyond his own apiary is in some respects only half a 'bee-man' after all. He may own a dozen or fifty hives of bees; moreover, he may be able to manage them well according to the requirements of his own district, and usually manage to overcome or meet contingencies which in the ordinary course are likely to arise there. All this *we* knew years before such a thing as occupying our present 'chair' was dreamed of; but we must confess that the mere fact of keeping bees oneself and working among them regularly gives but a small insight into the 'glorious uncertainties' of the bee-keeper's lot. Some will no doubt be inclined to smile at the words with which this article is prefaced—'Being watchful against starvation! Why my bees are pouring honey in!' Just so, and the stock which yesterday was living on almost its last ounce of food may to-day be doing likewise, but at the same time it may *not*, and hence the needed watchfulness. There is plenty of bloom about, and a full supply of nectar would soon be available to the bees if warmth and continued sunshine were with us instead of a fitful gleam now and then, varied by cloudy dulness and rain. When the weather favours us, nectar will flow in the flowers and, through the bees, into our hives; but until we are so favoured the 'good time' is delayed, and bee-keepers must meantime be awakened to the need for such watchfulness as we are urging. Nothing is so convincing as hard facts, and in the article before alluded to we quoted reliable information showing, first, how one bee-keeper had been astonished at the totally unlooked-for quantity of surplus

honey he found in a swarmed hive, and a second equally reliable report from the owner of about one hundred hives of bees, who declared that many stocks were reduced to the lowest ebb next to starvation. Writing now, only three days later, we have just heard of a swarm hived recently, which in three days from the time of being hived had increased forty pounds in weight!

Facts like these seem almost incredible to those whose experience of bees is limited to one district, but are none the less true, and go far to prove our contention that watchfulness in a time of uncertainty—by which we mean feeding wherever there is scarcity—will be well repaid if a time of plenty should, as we believe it will, happily follow.

BRITISH BEE-KEEPERS' ASSOCIATION.

The monthly meeting of the Committee was held at 105 Jermyn Street, on Tuesday, the 17th inst. Present: the Hon. and Rev. Henry Bligh (in the chair), Rev. F. T. Scott, Messrs. Jesse Garratt, W. Lees McClure, R. J. Andrews, W. O'B. Glennie (treasurer), together with Miss Eyton, W. Broughton Carr (*ex officio*) and J. Huckle, secretary. Several letters of apology for non-attendance were read. After the monthly statement of accounts had been read by the Secretary and adopted, and the formal business of the meeting gone through, the question of foul brood was discussed at some length, the Secretary being instructed to write the secretaries of the various affiliated county associations with the object of obtaining reliable data as to the prevalence of foul brood in the respective districts of each county where the disease is known to exist, and the extent to which its ravages have affected the pursuit of bee-keeping therein.

It is hoped that sufficient reliable information may by this means be obtained to warrant the Committee of the B.B.K.A. in taking action to secure the co-operation of members of Parliament representing the divisions of such counties as are troubled with foul brood, and, especially where much mischief has been wrought by the pest, in endeavouring to procure an interview with the President of the Board of Agriculture on the subject.

It is hoped that no effort will be spared to make the returns as complete as possible, and also in getting full particulars of cases where persons who formerly successfully kept bees for profit in large numbers, are now unable to do so because of the fear of infection. The stronger a case can be made out, the greater hope of legislative interference. The matter, therefore, in its initial stage, in a great measure depends upon the efforts county officials are willing to make, and when the vital importance of the subject is considered, we trust they will not be unwilling to render every assistance in their power.

ABOUT BEE-KEEPING.—III.

By the Wife of a Bee-keeper.

The Workers, or undeveloped females, are by far the most numerous of the inhabitants of the hive, in a prosperous colony often numbering from forty to sixty thousand. The worker is smaller than either the queen or drone, and possesses a barbed sting, which is a formidable weapon of defence. All the labour of the hive is performed by the workers. They build the combs, gather and store honey and pollen, make home comfortable by the use of propolis in stopping up all cracks likely to cause draughts, nurse and feed the young, guard against enemies, and ventilate the hive, rendering the atmosphere of their crowded dwelling perfectly pure by fanning with their wings, and causing quite a strong current of air at the doorway when the weather is very hot.

The young worker at its birth is a small, downy, soft-bodied creature, and for some hours it does nothing but stretch its limbs, become harder, and make acquaintance with its home. Then it takes its place as a nurse, feeding and attending upon the larvæ, thereby leaving the older bees at liberty to go forth as foragers until it is old and strong enough to fly abroad itself, leaving its place as nurse to be taken by others coming on.

Owing to its incessant labour in summer-time, the life of the worker-bee is but a short one, seldom extending beyond five or six weeks. The industrious little insect is so framed by the Creator that its length of day seems measured more by the amount of toil its body undergoes than by time; always eager to 'make hay while the sun shines,' its tiny frame is soon worn out; but as its life's happiness consists of 'work, work, blessed work,' it may be truly said to lead a happy life, if only a short one.

Eggs, whether intended to produce queens, drones, or workers, all hatch out in three days into a very small grub or larva; but the time occupied by the three in reaching the perfect insect stage varies very much. A queen is fully developed in fifteen or sixteen days from the laying of the egg, a worker takes twenty-one days, and a drone twenty-four. A good queen is capable, during the height of the season, of laying from two to three thousand eggs daily. Should it happen that a queen is hatched at a time when there are no drones in existence, then

occurs another marvel in the natural history of the bee, viz., that for the whole of her after-life her eggs will produce drones only.

Combs.—These consist of worker, drone, and queen-cells, the two former being the same in construction, but differing in size. They are six-sided, the bottom of one cell forming part of three similar cells on the reverse side of the comb. Thus, a comb consists of numbers of rows of cells, the bottoms of which form the central wall of the comb, called the midrib. Combs of this pattern, and exactly similar in size, are known to have been built by bees many thousands of years ago. The formation has never changed, and it is acknowledged by mathematicians that nothing could be imagined combining such an amount of strength and lightness as the cells of a honey-comb.

As already said, there is a difference in size between drone and worker cells, four of the former measuring the same distance across as five of the latter. In these the queen lays the eggs, worker and drone brood are reared, and honey and pollen stored. Queen-cells, on the other hand, are entirely distinct in size and form to either of the above. They are few in number, in form something resembling an acorn, are much larger and stronger than the others, are built on the outside edges of the comb, and have their entrance towards the floor of the hive. Here the young queen larvæ are fed on 'royal jelly' until they spin their cocoons, and go to rest to emerge as perfect winged insects.

Wax, from which the combs are built, is not gathered, as many people suppose, but is a secretion produced in the body of the bee. It is calculated that about twenty pounds of honey are required to secrete one pound of wax, and as there are nine or ten frames of comb in an ordinary hive, a large quantity of honey is consumed in the formation of these. When the bee is busy comb-building, the scales of wax are quite plainly seen protruding between the segments of the abdomen on the under side. It thus has the material in its 'wax pockets' ready for use, and it is both amusing and interesting to watch the little labourer, with no other tools than a pair of mandibles or jaws, like a tiny thumb and forefinger, moulding and shaping the cell with such wonderful accuracy.

Pollen is the fertilising dust of flowers, and is as essential to the well-doing of a hive as honey itself. It contains the nitrogenous element necessary in the food of the hatching brood. To gather this substance the bee visits hundreds of flowers on each of its daily journeys, and as the hairs on its body stroke off the flour-like dust from the anthers of the flower, the bee kneads it together and stows it away in two little pellets, one on each of its hind legs. These are the yellow balls seen carried into the hive in such abundance when a colony is prospering in spring-time. I shall have to speak later on about artificial pollen; but artificial food, though good in its way, is but a poor substitute for that gathered naturally, if the latter is to be had at all.

After the winter is over, and the bright, sunny spring days rouse the trees and fruit-bushes from their winter sleep, the bees waken up too, and the hum of the hive is one of the most pleasant sounds to be heard at that time of year. No honey is yet to be had outside, but as brood-rearing has now begun, pollen is required, and whenever warmth and sunshine tempts the bees abroad, they go in search of such plants as yield the desired food. Gorse, the catkins of the flowering willow, and the early flowering crocus, each give abundance of pollen in spring. Bee-keepers are always glad to see pollen-laden bees entering the hives, for it betokens prosperity within; and as the queen is filling the combs with brood, there will soon be young bees to take the place of the old ones whose days are nearly ended. As the spring advances, the population increases rapidly, until in May the queen will be laying thousands of eggs daily. You will readily understand that the enormous increase of population accruing from this amazing fecundity of the mother-bee would soon result in a complete crowding out of thousands of the inmates. The instinct of the bee, however, provides a remedy, and so preparations are made for emigration, or, as it is termed, 'swarming.' First, drones are brought into existence, and several queen-cells are built, in which eggs are laid, and the grubs nursed and fed until they are sealed over, so that further care is not necessary. Then, provision having been made for the future well-being of the old home, the bees, taking the mother-queen with them, leave the hive to find a new one and begin housekeeping afresh.

The act of 'swarming' is one of the most exciting episodes of bee-management. As soon as the signal is given, the bees rush forth, tumbling over each other in their hurry, and the hive month looks as if a stream of dark-coloured fluid were pouring from it. Watching this stream-like flow has made me wonder how the hive could possibly contain so many bees as have come forth, filling the air like snowflakes, and making a noise so great that no one can mistake its meaning. Children readily become accustomed to the well-known sound: and my own little ones are often the first to bring the news, 'Oh, ma, the bees is swa'min'!'

After the multitude of flying bees have careered for the time in mid-air, in what seems like wild confusion, they began to gather towards one spot, where they may be seen flying closer and closer, until a cluster, often resembling a gigantic bunch of grapes, is formed on, perhaps, the branch of some convenient tree. Now is the time for the bee-keeper to capture the swarm, and this must be done without delay, for should it be left to itself it will sometimes remain only for a short time at its first resting-place, and then travel on to a new home, perhaps a mile away, which has already been decided upon. It often happens that a swarm will take possession of a hive left untenanted in another apiary; the only swarm my husband ever lost did so. It had clustered

at the top of a very slender tree, out of reach: I watched it for an hour, when the cluster appeared to melt away, forming a cloud which sailed gracefully over the fields direct to a farm-house, and entered a straw skep. Another swarm once came from a cottage a quarter of a mile away, and took possession of a hive in our apiary which had been prepared to receive one we were expecting. That bees, previous to swarming, select a future home is certain. There is no indecision about the route; they fly direct to the location selected by themselves, and I have noticed that for some days before swarming the bees have examined minutely the house, outbuildings, and empty hives in the garden, evidently looking out for new premises.

A first or 'top' swarm never issues from the hive unless the weather is fine and the day bright, and then generally between the hours of eleven and three. In the olden time it was the custom to 'tang the bees down,' which meant making a great noise by beating on tins, shovels, &c., when the bees swarmed; and this is still done in remote districts where modern bee-keeping is unknown. Such was, not long ago, the custom in this part of the country, and I have known a man follow a runaway swarm for three miles, ringing a large bell all the way. Poor fellow! he lost his bees after all, for they flew direct to a hole in an old building and disappeared. Great amazement was created amongst our neighbours when my husband captured the swarm in silence, and had them working on their own stands in a few minutes from the time they issued. The good folk were hard to convince that he was right and they were wrong, but had to acknowledge at last that a swarm would settle without 'tanging,' and that after hiving it could be moved at once to its allotted place without harm happening to it.—*Co-operative News.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts* (*see 1st page of Advertisements.*)

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

A YORKSHIRE BEE-GARDEN.

[231.] Once more mounting my three-wheeled horse I set off, accompanied by my son, for a fifteen-mile ride to Aberford, a real old English stopping-place for the stagecoach of olden times, on the Great North Road (Watling Street), which leads, of my own knowledge, from near the Post Office, St. Martin's-le-Grand, along Princes Street, Edinburgh, and terminates goodness knows where. I know it left me on the edge of the Firth of Forth, by the water of Amond.

The true goal of the ride was one of the apiaries of Mr. W. Dixon, Beckett Street, Leeds, who is without doubt one of the largest bee-appliance makers in the North. It is only fair for me to say that bee-keeping, and the scientific spread of it in the district, has been much assisted by exhibitions of appliances and photographic lantern slides of his own production gratuitously lent by Mr. Dixon to the Yorkshire College and scientific institutions on the occasion of lectures, *conversazioni*, and exhibitions. By trade a cabinet maker for photographic and scientific instruments, it goes without saying that all we saw appertaining to bee-keeping was remarkable for accuracy and precision of parts, and that is saying a good deal in this part of the kingdom, where, until recently, a modern frame hive was almost any kind of box with any kind of frame.

Immediately we saw the snug bee-garden, with its twenty-three hives arranged in a semi-circle, every hive packed with bees working shallow frames and sections, it was dubbed 'A Warm Corner,' for there was such a roar of working bees on the boom, that merely closing the eyes brought vividly before the mind the association of the surf rolling on the seashore, and the coming seaside holiday (D.V.) rose up and broke the spell. I would say that at any moment of time at least a seven-pound swarm was on the wing, in the space in front of hives described by the aforesaid half-circle.

It was in this bee-garden two years ago that I had my first and only taste of honey bearing the distinct flavour of wild roses. Speaking of roses reminds me we were taken to see a range of earthworks, close to Aberford, which were thrown up during the Wars of the Roses, for we are close to Towton battle-field, where tradition has it that the bloodshed was such that the river near us ran red, and the wild white rose was so manured with human blood that it bore afterwards crimson-blotched flowers, and so originated the famous York and Lancaster rose so familiar to old rosarians. A near resident to Towton was so confident this rose grew wild on the battle-field that he promised to send me some plants thence. They never came!

Well, after inspecting the inner working of every hive, time and the prospect of a strong head-wind told us we had to go; so after bidding adieu to our hosts and the cosiest, most well-managed bee-garden one can well fancy, we turned our wheels homewards, and had a tough struggle for, say, eight miles, against half a gale of wind. So do our pleasures bear along with them their pains—the sting in the bee, the fly in the ointment. Anyway, we had had yet another of those jolly and thoroughly enjoyable times when bee-keeper meets bee-keeper, and which no one, I make bold to say, appreciates better than X-Tractor.

INTRODUCING QUEENS.

[232.] On the 22nd May I had a swarm from a bar-frame hive, and as the bees would not settle, but commenced to return to their original hive, I concluded that the queen, which I knew to be an old one, had fallen to the ground somewhere handy, which proved to be the case. After I had found her, I had a consultation with 'my better half' as to what was the best thing to do with her, for most of the bees by this time had returned into their old hive. We concluded if we turned her back into the hive she would come out again as soon as I was gone, and as I could not spare the time to open the hive just then, I remembered that the hive next to it was queenless, so I gave it a puff or two of smoke and turned the queen in there to take her chance. During the next three days there was no outward alteration in the appearance of this hive, but on the fourth they commenced carrying pollen, which told me that they had accepted the queen all right, and now, on the 16th inst., they are increasing in bees daily. I suppose the newly hatched ones are taking the place of the old bees as feeders, which allows the others to fly.

On the 1st of June the bees from the original hive swarmed again, and were hived in a straw skep in the usual way. From the way they clustered upon the bough, I thought there was more than one queen in this lot, and as I intended putting them into an empty bar-frame hive, I adopted the plan of running them in at the entrance. After I had seen one queen safely into the hive, I kept a sharp look-out to see if there were any more, and very soon caught another queen, and afterwards found a dead one, which made three. Now I happened to have another queenless hive, and as the first queenless lot had accepted the old queen, I thought I would try this hive with the young one, which, according to general report, would be a virgin. As it was getting rather late in the evening, to make sure of getting her into the hive at the entrance, I turned her under the quilt, after giving them a little smoke. On the 7th June, as the bees did not make any move through her being there, I thought she must be dead, but upon opening the hive I found that she was alive all right, although I do not think she had commenced laying, as I could not find any eggs; but the bees are hard at work carrying in pollen now, which shows that she is now laying. The question arises, When did this queen get fertilised? There was no brood in the hive I gave her to, and had not been all the spring, the bees being all old ones. I expected if she were not already fertilised when introduced, that when she did come out on her mating trip, she and most of the bees would go off together. I would have given them a frame of brood from another hive, but I wanted to see if, contrary to rule, she would stop without. My original intention in dealing with these two hives was to have given them a frame of brood containing a queen-cell and let them raise young queens; but having to deal with the first swarm upon the spur of the moment altered my arrangements. Most people would have told me to unite the queenless hives with their neighbours, but uniting old stocks is one of the things I cannot succeed at, and so have given it up.

What has become of my old county-man, 'Plate-layer?' We have not had his report of last year yet, and it was promised when his hand got better. I hope he has not had foul brood to knock him off the list, as I expected to have seen him showing at Rochester. I thought the show of honey very good for the early season.—MAN OF KENT.

[The queens which came out with the swarm on the 1st inst. would, of course, be young ones, and would each be fertilised in a few days after swarming. It does not by any means follow that the bees will 'come out' with a young queen under the circumstances described, though the bees do at times accompany the queen on her mating trip when only a nucleus hive has been dealt with. —ED.]

AN ACT FOR THE SUPPRESSION OF FOUL BROOD.

[233.] Mr. Thomas, in his letter (213), thinks that 'all readers of the *B. B. J.* and those who are bee-keepers' will unite with him in thinking that an Act of Parliament must be obtained to deal with this scourge. At the present time it seems to be generally thought that any and every grievance can be remedied to the satisfaction of all if only this magic wand, 'an Act of Parliament,' can be procured.

However satisfactory the clauses of such a Bill might be, it seems to be useless to agitate at the present for it, because bee-keeping in Britain is by no means an *important* industry. The number of apiaries consisting of over a hundred stocks is, I should think, less than a score, and those below that number may only be regarded as hobbies of their owners. Presuming that foul brood became so rampant that bee-keeping could no longer be carried on, how many men in the United Kingdom would be thrown out of employment? The promoters of such a Bill must be fully armed with statistics of this kind if they expect success to crown their efforts. I firmly believe that if every buyer of bees (even those who only buy one swarm or one queen) would do as I have done in the past, foul brood would not spread to an alarming extent. When buying, I have required a written guarantee that the seller's apiary has never suffered from foul brood. If the seller is ignorant of the disease, I have taken pains to discover whether the district is clear. I have received over 200 swarms at various times from all parts of the South of England, but I am able to state publicly in my advertisements that foul brood has never occurred in my apiary. I think every advertiser in the *B. B. J.* should be compelled to declare that at any rate his apiary has been healthy for the past twelve months. Having worked my apiary up to about

a hundred stocks, I have not required to buy any bees this year, nor do I expect to do so in the future; I therefore cannot state what districts are infected at the present time.

If I were circumstanced as one correspondent, who has a neighbour with one diseased stock, I would gladly give him a healthy swarm in exchange for his old stock, which I should burn before his eyes to show him that I knew the danger of such a hive, and thus do by private example what your correspondent wishes to accomplish by the machinery of an Act of Parliament.—EDWARD J. GIBBINS, *Neath, June 17th*, 1890.

A CONTRAST.

[234.] On referring to my diary *re* 'bee' matters for June, 1889, I find a contrast with matters in June, 1890. At this time last year sections were being taken off, all beautifully filled with the precious nectar. Not an ounce has been stored in sections as yet; in fact, many colonies are very short of stores. Several cases have come under my observation of drones being turned out, and the ground underneath the alighting-board strewn with young larvæ, 'chiefly drone.' The feeding-bottle having supplanted the section rack, on Saturday, the 14th inst., I examined a hive which had turned out drones, and there was not a single sealed cell containing honey in the hive—ten frames full of bees and quantities of brood 'on starvation's brink.' This is not a solitary case. I simply mention it *en passant*. This is very depressing, seeing there is, or was, such an abundance of forage. Sycamore and chestnut were laden with blossom, and I have heard old bee-keepers say they never saw such bloom on the hawthorn. Of course, there is still time if the weather would only 'take up.' Our clover is barely ready yet; the cold east winds and frosty nights may have retarded the secretion of nectar. Our honey-flow is yet to come. We must hope for the best and accept the inevitable.—ROMAN WALL, *Haltwhistle*.

A GROWL.

[235]. On May 27th I wrote to an old and well-known firm ordering a small parcel of goods. On the 31st I received invoice dated the 29th. I sent cash, and hold their receipt dated the 6th inst. Up to this date I have not been able to get the goods. Last week I wrote them stating that I considered it dishonourable, and quite unworthy a firm of their standing, to invoice goods which they were not able to deliver at once. I also stated I should protest in the *Bee Journal* against this system of trading. By return I had a post-card, saying the goods should be sent on Monday. If that promise had been kept I should have received them yesterday at latest.

I maintain that no firm should invoice and obtain payment for goods which are not ready for delivery; also that if there must be delay the customer ought to be informed, and the time stated when the order can be executed, so as to give an opportunity of getting them elsewhere if he is unable to wait.

I trust that all bee-keepers will resist this kind of treatment in all cases and so effect a cure.—W. D., *Lancaster, June 19th*, 1890.

BEE-PARALYSIS.

[236.] Apiarists all over the world seem to be much troubled with this disease of late. It is a most peculiar disease, and one that, in spite of much study and experimenting, I have not been able to thoroughly understand. In some cases the bees get emaciated, and have a shining black appearance; in others, and the one that has troubled me most, they retain their ordinary appearance; but in either case the symptoms are the same. The bees crawl about the ground, buzzing their wings, and making attempts to fly. Professor Cook some time back gave it as his opinion that there was a partial paralysis at the base of the wing, but was not at all certain. The Californian apiarists are sending in reports every week of the disease. I first noticed it about three years ago, and was nonplussed for a while. I tried a weak solution of phenol, which stopped the disease for a time, but it would break out every warm day. I then saw Alley's cure in the *Apiculturist*—namely, common dry salt sprinkled on the bees, and then soused with cold water. I mixed up a strong salt solution and tried it, with great success. Some hives that were incurable I re-queened, and the disease disappeared almost at once. Now there are many points about this disease that puzzle me. If the disease was in the queen, re-queening would not cure it until all her progeny had hatched out and died off; but as a matter of fact, the disease disappeared in a few days. On the other hand, if the disease was not in the queen, how is it that it disappeared only after re-queening? Another peculiarity: The bees get it worst in hot weather. Last season it attacked my home farm one very hot day; came on suddenly; every one of the 300 hives had it. Re-queening in this case was out of the question. I mixed up a couple of buckets of salt water, and doused a cupful into each hive; this stopped it in most instances, but some required another cupful. It came on again next day, but not so bad, and kept up for fully a week. We used some fifty pounds of salt on the farm. I stationed a boy to watch, and wherever he saw a hive affected he raised the cover and poured in a cupful of water. This was in the middle of the extracting season, and the hives were full of bees and honey. But the most extraordinary fact was this: Just after we discovered it on the home farm, I got word that one of my branch farms, over twenty miles away, was similarly affected, and on visiting it I found exactly the same conditions, and the disease lasted about the same time. While in Maitland some time back, I mentioned it to a bee-keeper; he said he had been troubled with the disease, but he did not know what it was, and it nearly ruined his and

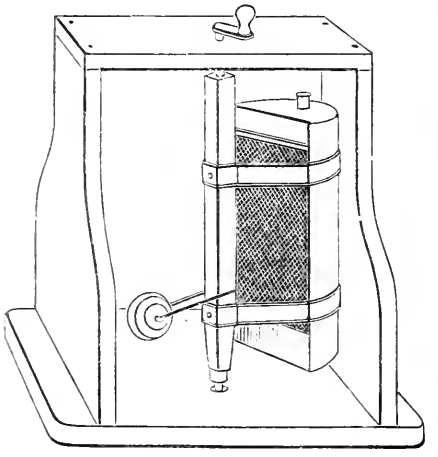
some neighbouring apiarists' hives. I have often heard reports of it inland, but never came across an apiarist, whose bees were within reach of the sea, who ever had it, or knew anything at all about it. This is to me conclusive proof that salt cures and prevents it, and I am inclined to think that it is debility caused by very hot weather. If any one else has had experience with the disease and cured it, let us hear about it through your journal.—Major Shallard, *Blue Mountain Bee Farms, Glenbrook, N.S.W.* —From the *Queenslander*, New South Wales.

ABNORMAL QUEEN-CELLS.

[237.] About two years ago I sent you a very similar account to that of your correspondent 'Malta,' in the *Journal* (No. 49, page 237), only in my case it was a virgin queen instead of a fertile worker which laid the eggs the bees tried to raise queen-cells from. Both sides of all the frames were covered like a forest with 'extraordinarily long and slender' queen-cells of pale-coloured wax, built on the dark-coloured combs. These cells ware corrugated like queen-cells. I cut one out, opened it, and a fine large drone walked out on my hand. I cut down the 'forest,' introduced a fertile queen, and the hive did well. It is an extremely flourishing hive now.—Beeswing.

ANOTHER CHEAP EXTRACTOR.

[238.] I am sending you a rough sketch of my 'Little Wonder' extractor, which (with Mr. Oetzmann's weight) proves itself a very



efficient and convenient machine. As will be seen, the handle or shaft is reduced to about 20 in., and a $\frac{1}{4}$-in. hole bored down about $1\frac{1}{2}$ in. The screw-socket of a shutter-bolt—which can be bought for a few coppers—is then let in and fixed by two screws; the bolt has its head filed off, and a crank handle riveted on. The sketch, I think, explains the rest. When it is desired to empty the can, you have but to reverse the handle and it comes away. The honey can then be run out in the usual way. Thanking Mr. Oetzmann for his useful hint—Arthur King, *Limpsfield.*

[A very useful adaptation, and, beyond the exercise of a little amateur joinering, one which costs a very small sum over and above the price (7*s.* 6*d.*) for a 'Little Wonder' machine, while it reduces the labour of working the latter to a minimum.—Ed.]

FOUL BROOD.

[239.] I think it is generally acknowledged that bees fed with phenolised food are less liable to foul brood; the acid causing a healthy condition of the blood they are better able to resist the attack of the microbe. This being the case, I should like to urge the use of phenol in the infected districts. If the district hon. secretaries would send information to the headquarters of their associations when they come across a case of foul brood, that district might be proclaimed, and warning given to all the members in it that their district was an infected one, together with the recipe for the use of phenol, where it may be obtained, and the importance of its use to prevent infection. I regret to say that I must proclaim my own apiary, as the disease has broken out in it, and I hope all bee-keepers will act on the above advice.—T. D. Schofield, *Alderley Edge, Cheshire, June 11th*, 1890.

FOUL BROOD AND FORMIC ACID.

The following directions for the treatment of foul brood with formic acid may be relied on as authoritative:—'Select a frame of clean empty comb, and pour about four ounces of formic acid on it by placing it on a table and dropping the acid on it from a height of a few inches. Contract the hive to as many frames as the bees can cover, and hang the frames containing the acid at the rear of the hive, cover up warmly, and put a sheet of paper between the layers of the quilt, so as to prevent the escape of the fumes of the acid as it evaporates. If the weather is warm, it will be found in the course of the week that the odour of foul brood has disappeared, and that the bees (if not too weak in numbers) have cleared the putrid matter out of the cells. It is seldom necessary to refill the comb more than once, unless the disease has been reintroduced by infected combs, &c. If foul brood is prevalent in the district, it may be well to keep some of the acid always in the hive as a prophylactic. In case of an ordinary ten or eleven-frame hive this can be done while honey is being stored by putting the acid into a section of empty comb, and placing the section at the end of the crate farthest from the hive entrance, so that the acid has to pass over all the combs before the bees fan it out. "Storified" hives can be treated by filling a comb and hanging it in the upper storey.

'For spring and autumn feeding add a spoonful of acid to each quart of syrup.

'As formic acid does not affect the flavour of the honey, it can be used with perfect safety while honey is being stored, and as a remedy it will be found far superior to either phenol or salicylic acid.

'N.B.—When foul brood is actually present the acid should be used as sent out. When used as a prophylactic it may be diluted at discretion. May be obtained from any druggist in the kingdom.'

BEE THEFT.—On Wednesday, at the Sheriff Court, T. Reid, farm-servant, Hereshaw, Avondale, was charged with the theft, on the 26th or 27th March, from an unoccupied garden at Irvine Bank Cottage, Loudoun, of a skep of Carniolan bees, a honey-box, a tin fender, and a seed-bag, the property of David Hastings, gamekeeper. Reid pleaded guilty, saying he had got them in a present, but it would take some time to get the man from whom he got them. In spite of the Sheriff's order to adjourn the case, Reid persisted in his plea, said he would rather take the consequences than be put to the trouble of bringing the man. He was sent to seven days' imprisonment.

BEE SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

June 23–27.—Royal Agricultural Society. Plymouth Meeting. Entries closed May 1st. Secretary B.B.K.A., J. Huckle.

July 8–11.—Hampshire B.K.A. in connexion with the Royal Counties' Agricultural Show at Winchester. Hon. Secretary, H.B.K.A., Rev. W. E. Medlicott, Swanmore Vicarage, Bishop's Waltham.

July 16–17.—Notts B.K.A. in connexion with the Notts Agricultural Society's Show at Wollaton Park, Nottingham. Entries close June 21st. Schedules, &c., A. G. Pugh, Hon. Sec., N.B.K.A., 45 Mona Street, Beeston, Notts.

July 24–25.—Lincolnshire Agricultural Society, 25*l.* in prizes for honey, hives, &c. Entries close July 8th. Stephen Upton. St. Benedict's Square, Lincoln.

July 25th–26th.—Wilmslow and Alderley Horticultural Society, 7*l.*, and silver medal in prizes for honey. Open to Lancashire and Cheshire only. Hon. Sec., T. D. Schofield, Oakfield, Alderley Edge. Entries close July 12th.

August 8–9.—Bramhall and Woodford Horticultural Society. 8*l.* 10s. and silver medal in prizes for honey, open to Lancashire and Cheshire only. Entries close July 26th. Lists from W. Slater, Rose Cottage, Bramhall, near Stockport.

The Windsor and District Branch of the Berkshire B.K.A. will hold their annual exhibition in the Home Park, Windsor, early in July. (The date remains to be fixed by Her Majesty the Queen.) For entry forms apply to the Hon. Sec. Show Committee, W. S. Darby, 1 Consort Villas, Arthur Road, Clewer.

THE HONEY MARKET.

Combine, combine, bee-keepers all,
Whether your 'biz' be large or small,
Keep up the rates of honey:
Ten cents extracted is the price,
Eighteen for section-boxes nice,
And see you get your money!

Beware, beware the dangerous den
Of hard and grasping middlemen—
Sell honey 'straight,' as whiskey
Is swallowed down the leathery throats
Of tough saloon-frequenting bloats—
All other modes are risky.

But now that sugar is so low,
And may, perhaps, yet lower go
Before it finds rock-bottom,
Had we not better face our fate—
Let the extracted go for eight?
And—comb—well, if you've got 'em,

You'll see the prices current veer
From eighteen there to thirteen here,
Till men of wisdom wonder
Whether it is not time to 'get,'
And, for their parts, consent to let
Bee-keeping go to thunder!

Sweet friends, can we not find a field
That will a flow of honey yield,
Our present one to double;
Also a way to handle bees,
Doing our work with greater ease,
And half the time and trouble?

The laws of trade are bound to rule,
And he who doubts it is a fool—
Low prices catch the masses;
If we intend to 'take the cake,'
Honey we must as low-priced make
As sugar or molasses.

Dear friends, I hate to see you wince,
Because the truth I cannot mince,
But must your pet corn tread on;
Yet still a living you can earn,
If you at once turn to and learn
Bee-keeping *à la* Heddon.

If this we do, glucose 'must go,'
For we will honey sell as low
As that nefarious mixture;
Oh! won't it be the jolliest fun,
To see the arrant humbug run
And honey stay a fixture?

Poetic justice will be doled
To those who have the public sold
When glucose thus goes under;
Then give them competition hot,
And send their syrup shops to pot,
'Mit blitzen und mit dunder.'

Mead and metheglin then will be
Drunk by the multitude like tea—
Hams will be cured with honey:
No bee-man wear a downcast look,
But each possess a pocket-book
Which has some ready money!

W. F. CLARKE.

—*American Bee Journal.*

Queries and Replies.

[100.] *Drone Cells on Worker Foundation.*—1. Can you account for bees building drone comb on worker foundation, there being plenty of drone comb in the hive? 2. My hives showed a great tendency to swarm in spite of having on one section crate per hive. I therefore placed on a second for each hive, which was speedily filled with bees, but not honey. Am I right in so doing? 3. Is it necessary to feed a swarm that has three inches of sealed honey per bar, and more unsealed, with plenty of brood? 4. When does white clover commence to bloom, and when does the principal honey-flow commence?—AMATEUR, *East Somerset.*

REPLY.—1. When stocks are preparing to swarm, or when honey is coming in very fast, the inclination to drone-comb building is sometimes irresistible to bees, and they *will* build it when in this mood in spite of our endeavours to prevent them. 2. Quite right. 3. Decidedly not. 4. With you white clover should be in bloom about the first week in June, and the honey-flow from it depends very much on the weather conditions at the time it is in bloom.

[110.] *Transferring to Frame Hive.*—1. I have a very strong swarm in skep (about six pounds) taken on the 1st inst., and I propose leaving them till the middle of July, and then transferring to a bar-frame hive, placing queen-excluder over frames, and working old skep as super. This is, I believe, no new method, but being only a beginner I have never attempted it before. 2. What time ought the skep to be removed? and, 3, What is the best method of extracting the honey from the comb?—A SUBSCRIBER, *Croydon.*

REPLY.—A swarm in skep as described will be in the worst possible condition for transferring bees, combs, &c., to a frame hive. Do not attempt it; with tender combs, full of brood and honey, in the hands of a novice it would be most injudicious to risk it. 1. The bees may be induced to work down into the frame hive if the latter is fitted with full sheets of foundation, and the skep carefully fixed over the top of frames by setting it on a thin wooden adapter with a good-sized circular hole in its centre. But you must pack warmly all round the junction of the two hives, so as to make the lower one warm and inviting to the bees. Place no excluder on until the queen is laying below. 2. When the honey harvest is at an end. 3. By using a cylinder extractor.

[111.] *Re-queening.*—Desiring to re-queen the whole of my stocks (over thirty) from two of Benton's selected queens (which have both swarmed), and not wishing to make sufficient nuclei to hold royal cells for the whole at once, can I keep the queens without injury to them whilst the first batch are being fertilised? and if not, what will be the best way to proceed, seeing that queens raised by the bees for natural swarming are the best? My drones in the other stocks are mostly from English-raised Carniolans.—ALPHA.

REPLY.—Since you are good enough to ask our advice as to 'the best way to proceed,' we say don't re-queen the whole of your stocks with Carniolans. Many have tried the same thing and 'wished for their old black bees back again.' Be content by experimenting with one-half the stocks, retaining, of course, the best black queens you have. This will reduce the extent of your operations, and no doubt of your cares, judging by present experiences you give on another page. Virgin queens cannot be kept for an indefinite length of time imprisoned with a few bees in a box without parting with some of their natural instincts; and so they must be less likely to seek normal mating when released.

[112.] *Pollen in Comb.*—I enclose two pieces of comb. I shall be glad if you will say what it is the cells contain. I presume it is pollen. Will it taint the honey, as the combs I have cut the pieces from are some that I extract from? Will the bees clear it out if I give them the combs, or had I better do so?—JAMES HILL, *Stanground, Peterborough.*

REPLY.—The comb sent contains only freshly gathered pollen: to say 'Will it taint the honey?' is using too strong a word. It does a little deteriorate honey when stored in pollen combs, but not to the extent of tainting it. The bees will themselves use up the pollen if given back to them.

[113.] *Securing Runaway Swarms.*—I live in a lath-and-plaster house. On Sunday, June 1st, a swarm came and established itself between the outer and inner walls. On Monday, June 2nd, another swarm came and did likewise, both about twenty feet from the ground. I should be very glad of your advice respecting them. I want to put them into bar-frame hives.—J. B. C.

REPLY.—It is no easy matter to advise, without having seen the place and its surroundings, how to remove a couple of swarms from a lath-and-plaster house. We can only give a few instructions in a general way, and would first observe that it requires an experienced hand to deal with bees in such circumstances. If you can make an opening sufficiently large to insert both hands, you may, after exposing the bees, smoke them away from the combs, while the latter are cut away one by one and carefully tied into frames. Any combs containing honey only may be taken away and used, but those with brood should be very carefully preserved, without exposing the brood to 'chill' and consequent death. After the combs are all secured the bees may be scooped from the aperture; or if a bottomless box could be inserted below the cluster as they hang in the now combless space, they may be secured and shaken into the frame hive after the combs in frames have been carefully hung, and the hive covered down warmly.

[114.] *A Beginner's Queries.*—1. Would you kindly give me recipe for charging carbolic fumigator? I put a knob of carbonate of

ammonia in the barrel of one, and it has eaten it nearly in half. 2. Which do you recommend, four or two bee-way sections? 3. Which are the best dividers, tin or wood? 4. At what number did the eighteenth volume of the *B.B.J.* commence, as I wish to get back numbers? 5. Do you recommend smoker or fumigator as the best?—BEGINNER.

REPLY.—1. The inventor's directions are as follows: 'A piece of sponge is saturated with carbolic acid, creosote, and water. At back of sponge a piece of carbonate (the common hard or crystal form) of ammonia is placed. When so prepared the fumigator is ready for use.' 2. Four bee-way. 3. For four bee-way, metal; for two bee-way, wood. 4. No. 1 of new series (393 old series) was issued on January 2nd, 1890. 5. Smoke has been the most uniformly successful with us.

[115.] *Sparrows and Bees.*—My apiary has been for the last few weeks infested with sparrows, which have become so bold that even when I am there they will hop from one entrance to another. Although I have closely watched them, I have never been able to see them take a live bee. Will you kindly tell me, or ask for me, if it is only the dead bees they are after, or do they take live ones? If so, the remedy. Echoing your wish that the good weather may soon come—W. H. L., *Stamford.*

REPLY.—Sparrows cannot be classed among the enemies of bees. They may, if pressed for food, eat up any dead bees lying about, but we never saw them take live ones.

[116.] *Queens cast out of Hive.*—I herewith send a dead queen I found put out of a hive four days ago. I thought of sending it on at the time, to ask if it is a young queen or a worn-out one, but delayed posting and yesterday the bees swarmed. This hive has not swarmed for some years. To-day I picked up three queens which had been cast out. 1. Is it likely to swarm again nine days hence? 2. I also send a bottle of food (some combs melted down, having part syrup and part honey) I fancy it has a burnt taste; it contains salicylic acid. Do you consider it fit to use as food? I have not fed for some weeks, and combs seem, to-day, very bare of food. —W. GOODALL, *The Knowle, Rostrict, June 14th.*

REPLY.—1. The queen first cast out is the old one, and has met with some mishap—probably a day or two before you discovered her—when in the act of swarming. The bees will not be likely to swarm again this year. 2. The syrup is burnt a little. No doubt the bees will take it if no harm result, but we would prefer not to use it as bee-food.

[117.] *Queen in Supers.*—On examining my supers last week, I found that in one of my hives the queen had been laying eggs in some of the sections. I was told by the dealer from whom I purchased hive, that excluder zinc was hardly ever used below sections. Would you kindly tell me how to prevent this again happening without using excluder zinc, and whether there is any particular reason for the queen entering the supers?—J. L. REEVE, *Wallington.*

REPLY.—Some dealers—and bee-keepers too—hold the opinion that excluder zinc is not required below sections. You have now your own experience to show how far that view is correct. You cannot *prevent* it happening except by using zinc. The queen passes to wherever she can find breeding-space if pressed for room.

[118.] *Broodless Hive.*—I examined one of my hives to-day, from which a second swarm issued about a week ago, and I found *no brood*; all the combs empty in the centre, and no sign of eggs. Why is this? Everything about the hive appeared to be perfectly healthy.—B. B. HAGEN, *Sway House, Lymington, Hants, June 15th.*

REPLY.—The broodless condition of the hive only shows that at least twenty-one days have elapsed since the first swarm issued. For the rest all is perfectly normal, and, all being well, the young queen will begin to lay in a few days.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

S. BULMER.—The queen sent is old, and has been deposed and killed by the bees themselves.

H. S. CHAPMAN.—The specimens are wild bees of the family of the *Andrenidæ*. They burrow in the ground, storing food for the future larvæ, and each egg is 'set' at the bottom of a tunnel.

M. STEELE.—The substance (something akin to honey-dew) which bees gather from the leaves you name is not harmful to them, but it is not honey.

APEX (Cheadle).—Queen is probably not more than one year old. Her failure and the cause of the bees' desertion has been due more to paucity of numbers at the time of purchase than anything else, we should say.

H. (Nottingham).—The queen sent is a remarkably fine one, but quite young and unfertilised. We prefer to leave brood in section till it hatches out. Cutting it away is a 'messy' job, and the section of comb never looks well afterwards, even if rebuilt and filled. To prevent it use excluder below.

W. T. C.—Use *hot* water with the carbolic, and shake well before using. Punic bees are described in *B. J.* for June 5, p. 271. To name a hive-bee that will 'work well on red clover' is beyond us. Ligurians are *said* to visit it.

GARSTON.—From the appearance described it seems probable the hive has swarmed unseen,

and that the swarm has absconded. The bees sent afford no clue whatever to the unravelling of the mystery.

R. TYLOR (Leicester).—The plant is the common meadow trefoil (*Trifolium procumbens*). Bees freely visit it, and it yields both honey and pollen.

Echoes from the Hives.

Glan Collumbkill, Boston, Oranmore, June 15th.—As you have not had an echo from Clare this year I will venture a short one. I think it surpasses the memory of 'the oldest inhabitant' when such a glorious display of blossom was seen, and yet the flow of honey was very partial and I think below last year's average, when the hawthorn was *sulky*. This time last year I had a crate filled: now I have not two sections capped, though I gave all *full drawn-out* comb: but not eight miles from here a friend has taken off some ten or twelve *completely* capped sections as early as the 2nd or 3rd of June. This was an early year for brood, and from four *French hives* [ED.]. I have already had six swarms, three issuing one day. From a *box* hive, where I suspected all was not right, I cut out all the comb and found it had been long queenless, though containing near forty pounds of granulated honey. Steadily, if not rapidly, *bar-frame* hives are superseding skeps here.—J. B. O'BRYEN.

Morchard Bishop, North Devon.—Swarms from skeps are plentiful here, the earliest I heard of being on May 2nd. All hives are full of bees, but very little opportunity for working. The clover is just coming into bloom now. By-the-by, do brown bees (natives) gather from *trifolium?* I noticed a lot of my Carniolans in a patch about a quarter of a mile off, but no browns.—W. F. TRONSON.

[*Trifolium* includes the whole of the clover tribe of plants. Do you mean the common meadow trefoil? If so, bees do gather honey and pollen from it.—ED.]

THE
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BEE-KEEPERS' RECORD AND ADVISER.

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Editorial, Notices, &c.

THE ROYAL SHOW AT PLYMOUTH.

A 'Royal' Show held so far down in South Devon as Plymouth presaged in one's mind a considerable amount of uncertainty as to its ultimate success in point of attendance and the interest likely to be aroused. There is so much in favour of a central agricultural district for the holding of an Agricultural Show, that it required a considerable stretch of the imagination, to picture the inhabitants of a town, or, rather, a trio of towns—for Devonport, Stonehouse, and Plymouth are practically part and parcel of each other—wholly devoted to war-ships, Government dockyards, sailors and soldiers, becoming enthusiastic over a show in which ploughs, horses, cattle, and such-like, form the staple of the display. It, however, required but the daylight following our night arrival to remove any uncertainty on this score. The authorities, and behind them the people, determined to rise to the occasion and give the 'Royal' Society a royal welcome. Everywhere preparations were in progress or already completed, and the decorations throughout the whole place were on a very elaborate scale, quite superior to anything we remember to have seen on a similar occasion. Union Street, a thoroughfare beginning in Devenport and continuing right through Stonehouse and Plymouth, was one long line of festoons, streamers, and flags, stretching from tall poles erected along its whole length. All the main streets, indeed, were quite gay with triumphal arches, flags, flowers, and all sorts of ornamentation. On all sides it was apparent that the residents had determined to make the occasion one of popular rejoicing and holiday. The weather was beautiful; the show-ground well chosen, close in to trains, and easy of access from all points; therefore little was wanted to make the Show of 1890 a complete success.

The general entries were fewer than at Windsor, but that was quite expected, though in the special department in which we bee-keepers are interested, only a slight falling off was observable on paper. The shedding devoted to 'bees, hives, and honey,' as the signboard had it, was, however, severely handicapped by the remoteness of the locality in which the show was held, as well as by other circumstances against which it was impossible to provide. For instance, it required a considerable amount of enterprise on the part of manufacturers to undertake the conveyance of so large a consignment of goods as is needed for the 'collection' class for hives and appliances well on for 300 miles by rail to a show. This difficulty had a perceptible effect on the entries in this class, and we were not surprised, though sorry, to find absentees from the show tables whose interests would have been better served had they been present, or at least represented by a few of their goods. Had all the entries been staged the bee department would have been a most creditable one, excellent arrangements having been made for the reception of the goods; and the Executive of the B.B.K.A. are certainly entitled to more consideration at the hands of exhibitors than being compelled to make provision for, and arrange shedding to accommodate, numbers of exhibits which never put in an appearance.

Allowance must, of course, be made for the distance away, and also for the fact that manufacturers are 'so busy at home they don't know how to turn;' but it seems to us rather an unsound business reason, or excuse, for staying at home when work is plentiful, and new patrons and new buyers are springing up on every side. Besides, there was every chance at Plymouth for selling, and, with good salesmen present, few goods need have been returned unsold. Not only was this so, but there is, to our mind, an unanswerable argument in favour

of every manufacturer in the country being represented at the 'Royal'—even by a single hive or an appliance of some kind—in the fact that he thereby gets his name printed in the most important catalogue in the country; and to fail in staging the goods entered is in some degree a breach of contract which is certainly unfair.

We make these remarks in the best interests of manufacturers themselves, because there can be no doubt that the publicity of important shows like the 'Royal,' and other large agricultural shows, is of enormous advantage to our industry, serving, as it does, to bring bee-keeping before thousands of persons who, without such opportunities, would never know a word about bees or bee-keeping at all. The misfortunes of the memorable year '88 seem to hang about our appliance dealers like an incubus, and consequently the 'show' suffers. In itself a disastrous year for honey-producing, hives and appliances purchased were unused till the following year of '89, and this reduced sales terribly last year. Now in '90 every one is too busy with orders to leave home, hence the 'show' again suffers, let us hope, for the last time, and that at Doncaster next year modern bee-keeping will be brought before the public by a display worthy of the interest taken in the bee department of every succeeding 'Royal' Show.

We are glad to report that the exhibitors who attended were more than pleased at the number of their sales and orders, and that the utmost interest was taken in the bee department all through. On the last days of the show especially, the exhibits were inspected by large crowds of interested visitors, while at the manipulating tent Mr. R. Green lectured to rather inconveniently large audiences.

We need not dwell at any length on the merits of the various classes or exhibits staged in each. The number of absentees affected the closeness of the competition very much, and lessened the labours of the judges in a proportionate degree. In Class 276, for collections of appliances, Mr. W. P. Meadows was first, and Mr. C. T. Overton second; the former with a display of goods in which no out-of-date articles found a place, the collection being especially strong in metal goods. A new form of spring travelling crate for sections attracted our notice as being a useful improvement; the crate divides into two parts and, being capable of expansion, will accommodate sections of different widths as well as giving new facilities for removing the sections. Mr. Overton staged the same collection with which he won at Rochester a week or two ago.

Class 278, for 'The best and most complete frame hive for general use,' brought but few entries, the highest place being given to the well-known 'Nottingham hive' of Mr. Redshaw. We think it will be well for the maker of this hive to consider the desirability of making some alteration in its structure if it is exhibited next year. It is, without doubt, a good hive, but, seeing that it was specially designed to meet requirements in the schedule no longer insisted on, or even mentioned, we fail to see the necessity for staging such a pile of unsightliness as is presented by a hive consisting of two standard body-boxes (one without frames), both with projecting porches and entrances; a shallow frame-box, for some inscrutable reason also fitted with a similar porch and entrance; two shallow lifts, covering a crate of sections, and roof; the whole being four feet high! An onlooker in our hearing rather appropriately named it the 'Eiffel Tower' hive. The Committee of the B.B.K.A. have wisely discarded the rule requiring a porch and entrance to each storey, also that of a body-box to cover a crate of sections, and this being so the maker might discard the duplicate body-box and duplicate entrances, to the advantage of the hive both in appearance and efficiency. The second prize in this class went to a somewhat incomplete edition of the 'W.B.C. hive,' staged by Mr. Overton, and the third to Mr. W. P. Meadows. In Class 279, for the most complete and inexpensive frame hive for cottager's use, no 'first' was awarded, Mr. Overton taking second with a useful cottager's hive, though not without faults, which the withholding of first prize from will no doubt cause the maker to improve away. Third went to Messrs. Hutchings Brothers.

In Class 280, for honey extractors, Mr. Meadows carried off both prizes with a 'Raynor' and a 'Guinea' machine respectively. The 'Raynor' had an improvement which does away with the tin backing of the revolving cage, the honey being thrown direct against the outer cylinder, thus relieving the cage of the weight of honey carried along with it in the old pattern. Both this and the 'Guinea' extractor are

fitted with a new lock treacle-valve tap, which will be found very useful at times. Class 281, 'Best pair of section racks,' brought only five entries; Mr. Meadows' first prize ones possessing, among other merits, the important one of having metal bearers for the sections which will not 'sag,' as so many do. The second went to Mr. C. Redshaw, and the third to Mr. Overton. We noticed that unrestricting the price for section racks in this class caused them to be priced respectively 16*s.*, 12*s.*, 9*s.*, 8*s.*, and 5*s.* per pair.

Class 282, for best feeder. This class presented a difficulty to the judges which could only be overcome as it was at Rochester, viz., by awarding a prize to each of the two types of feeder staged. To pit a rapid feeder of the Canadian pattern against a slow regulating bottle-feeder is an anomaly in judging only to be met in this way. There ought certainly to be two classes for feeders or none at all. The class for useful inventions brought out nothing of note.

Coming to the honey classes, we again had to confront the absentee question, though, of course, honey exhibits in the early season are so at the mercy of the elements that no reasonable ground of complaint exists if there are some 'gaps' in the staging. The good weather of a few weeks ago, which led many of us to indulge in hopes still awaiting realisation, was sufficiently productive of good honey, while it lasted, to make the Plymouth Show a most creditable one considering all things. Indeed, with just another seven or ten days' continuance of the good weather experienced early in the season, we should have had one of the finest 'Royal' Shows of recent years in the honey classes. The first prize, for twelve one-pound sections, went to an exhibit of nicely finished ones, though but for a want of finish and a little incomplete sealing the second prize lot were far superior in colour. The third prize lot were also very fair in quality. The same remarks apply exactly to the following class for six sections, similar yellow ones again being placed first.

The judging in these two classes would no doubt cause some onlookers to suppose that saffron-coloured sealing was a point of merit in comb honey, which it certainly is not, and other points being equal, the white comb would undoubtedly be placed first. Class 285, for the best single section of comb honey, brought out a very disappointing display, and formed a curious commentary on the idea entertained by some that a class for one section would bring entries by the hundred. Only five single sections were staged, and of them there was none worth particular notice.

Class 286, for the best twenty-four pounds extracted honey, was well filled, and a fair number staged. The first prize lot was a very good sample indeed, the second, third, and fourth, being also very fair, and altogether this class was a very creditable one.

Granulated honey also was well represented, every exhibitor in this class putting in an appearance, and some good honey was shown. Class 288, for the best and most attractive display of honey in any form, only brought one exhibit, and to this the judges awarded a second prize. In the concluding Class 290, for the most interesting and instructive exhibit connected with bee-culture, the Rev. J. Kempe was awarded first for a beautifully got-up exhibit of bees-wax, and third went to a set of diagrams for the use of schools, creditable enough as indicating a movement in a much-needed direction, but not possessing any particular merit; in fact, the drawings shown were mostly crude copies of ideas illustrated in bee-books of the day.

Below is the full list of prizes:—

Hives, Honey, &c.

Class 276.—For the best collection of hives and appliances. First, W. P. Meadows; second, Charles T. Overton.

Class 277.—For the best observatory hive. First, Charles T. Overton.

Class 278.—For the best and most complete frame hive. First, Charles Redshaw; second, Charles T. Overton; third, W. P. Meadows.

Class 279.—For the most complete and inexpensive frame hive for cottager's use. First, not awarded; second, Charles T. Overton; third, Hutchings Bros.

Class 280.—For the best honey extractor. First, W. P. Meadows; second, ditto; highly commended, Turner & Sons.

Class 281.—For the best pair of section racks. First, W. P. Meadows; second, Charles Redshaw; third, Charles T. Overton.

Class 282.—For the best feeder. First, W. P. Meadows; second, ditto.

Honey.

Class 283.—For the best twelve sections of comb honey. First, W. Woodley; second, Wakefield Christie-Miller; third, Rev. F. T. Scott.

Class 284.—For the best six sections of comb honey. First, W. Woodley; second, J. Garratt; third, W. G. Preece, jun.

Class 285.—For the best section of comb

honey. First, J. Garratt; second, Miss M. L. Gayton; third, Capt. W. St. G. Ord.

Class 286.—For the best exhibit of run or extracted honey. First, J. Garratt; second, J. Thorne; third, Mrs. E. J. Cox; fourth, M. Whittle.

Class 287.—For the best exhibit of granulated honey. First, W. Sturdy; second, Rev. J. Kempe; third, ditto.

Class 288.—For the best and most attractive display of honey in any form. First, not awarded; second, James Thorne.

Class 289.—For useful inventions. Commended, Thomas Lowth (no prize awarded.)

Class 290.—For the most interesting and instructive exhibit of any kind connected with bee-culture. First, Rev. J. Kempe; third, Henry J. Orchard.

USEFUL HINTS.

Weather.—Readers will note that, following the excellent precedent established by our predecessor in this department, our 'Hints' always begin with some reference to the weather, that being justly supposed to be the subject of most importance to the bee-keeper for the greater portion of each year, and for a few weeks to come the situation is daily becoming more critical as time passes and no work is done by our bees. But what a month June has been! and, while we cannot but lament its failure as a bee-month, what a blessing it is that we cannot make the weather. If we could, and puny man could shape it according to each one's selfish little view of what ought to be, what a delightful state of things would result! No, it is indeed 'for the best' that the ruling of these things is in higher hands than ours; trying enough to one's patience it may be, but we must be content to wait. 'But,' says some one, 'there's another precious fortnight gone, and we are still waiting.' And it must be confessed that it requires the spirit of Mark Tapley himself to see without grumbling the white clover in luxuriant bloom all around, while the rain, rain, day after day, so pitilessly spoils the bee-keeper's propects. If we could be sure that the wet June would be followed by a hot, dry month of July, we could still afford to be cheerful enough, for there is yet time in which to do well; indeed, it forms the one ray of comfort visible that the wet weather has produced a heavy bottom growth of clover foliage, and though it is in full bloom in the south, and probably the same in the north, it will continue to flower and produce honey for a full month to come.

Surplus Chambers.—Any reference to the removal of surplus honey may be deferred to our next 'Hints,' and it becomes a question for serious consideration how far feeding should be resorted to in cases of known scarcity. It will not do to altogether remove surplus chambers now on the hives for the purpose of slow bottle-feeding; and we have, in similar circumstances, found it advantageous to lift off shallow frame-boxes, and pour some syrup into the cells of each outside comb on the side of the combs next the hive-side, where there is seldom much brood. In this way a couple of pounds of food may be given in a few minutes, and we have not found it carried up into surplus boxes to any perceptible extent.

In such a season as we are now enduring the comfort and ease of mind to the bee-keeper who has all his surplus chambers protected from the incursions of prolific queens is great indeed. Formerly, when we knew less about the value of excluder zinc as an item in bee-management, we have had boxes of white combs by the dozen utterly spoiled during an extended lull in the honey income such as we are now experiencing, and the mischief was aggravated by the shortness of the time left in which our bees could make up for the days wasted in enforced idleness. Frames full of brood which was not wanted, where we counted on white combs of sealed honey, formed an aggravation of the bee-troubles of past days for which we must thank the introducer of the long-hole excluder zinc for ridding us.

Self-hivers.—The complete stoppage of swarming resulting from the untoward weather has considerably lessened the number of reports we hoped to have had concerning this latest 'move' in bee-management. So far, two successes and one failure have been reported, and thus the balance of printed evidence is favourable to the new idea; but it may be doubted whether the 'arrangement' of Mr. Bennett will receive a fair chance at the hands of all who make trial of it for the first time. Little difficulties will, no doubt, arise in some hands which in others would be no difficulties at all, and so it is quite reasonable to await the results of a full season's experience before either condemning it or rushing off to the other extreme, and fixing 'hivers' on every stock, whether really required or not.

Feeding.—Attention must still be given to stocks known to be short of stores. Were we favoured with even one day in each week when bees could work all would be well, but for some weeks past the income has been *nil*. Nothing could be done, and consequently food supplies in many good colonies are reduced to a very low ebb. In view of this it would be absurd to neglect them at such a critical time, and no better way of giving food—if open-air feeding cannot be successfully adopted—will be found than that already mentioned.

Giving Surplus Room.—It is now quite certain that at the best we can only have a short season of honey-gathering, therefore it will be well to curtail somewhat the amount of surplus room which under ordinary conditions it might be advisable to give. Hives with, say, three crates of sections, or the same number of shallow frame-boxes, will have all their work cut out to complete them before the season is practically over, and it will be well therefore to give no additional room till the sections or extracting frames already on are well-nigh completed.

Correspondence.

The Editor does not hold himself responsible for the opinion expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts* (*see 1st page of Advertisements*).

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

APPLIANCE DEALERS.

[240.] I should like to add a few words to endorse fully what your correspondent 'D. Cockburn,' in *B. B. J.* of June 19th, asserts. I and another bee-keeper in the village have each suffered at the hands of dealers by great delay and neglect. I should like to ask one question, which is applicable to their side quite as much as ours, viz., Why, if they refuse to trust a customer even a post, should the customer be expected to trust *them* a week, fortnight, or even six weeks, as I have known to be the case? It is unreasonable and unjust. Last summer I ordered 17*s.* worth of things from one of the oldest firms, and could not get either goods or apology, though I wrote several times. Certainly it was the end of June, but some *notice* ought to have been taken if they were busy. I waited nearly a month before my order was filled, writing about every other day, and in the end never had one word of regret.

The bee-keeper above mentioned, sent an order to the same firm during this last winter, and had to wait fourteen weeks before it was completed, neither could he get any information as to the cause of the delay, or when order would be executed. He, like myself, found writing was not of the slightest use! How, after such experiences, can you wonder customers complain? I think such dealers want exposing as a warning to others, and a rebuke to themselves. I had been a customer of the firm in question before they knew me, and though they were somewhat dilatory I went again, but 'never again,' nor will the other bee-keeper.—Bee-Kay, *Great Grimsby.*

[We omit name of firm alluded to, though our correspondent intends that we should print it. In no case will names be printed, for obvious reasons; and we must also say that it is perfectly fair and reasonable for a firm to resolve on doing only a cash trade if it is so announced publicly, customers having the option of accepting these terms or not.

It appears as if some few of our large firms were just now giving less attention to the bee-appliance trade than formerly, presumably because they have found a more paying outlet for their energies. There is no doubt that appliance dealing is a very difficult business to manage to the satisfaction of every one; many jobs and orders for special things out of the general run of trade costing more to produce than customers will pay for them; and we certainly do not think that our appliance dealers are as a rule guilty of such neglect as is spoken of.—Eds.]

ABSCONDING SWARMS.

[241.] At the close of your editorial on the above, June 19th, you say, 'Some American bee-keepers have propounded the idea that hiving swarms on the old stand has a tendency to cause absconding.' Now my experience, though limited, goes entirely to support that notion. It June, '89, I hived a swarm for a friend in a small but *new* box, and left it, with its front edge raised by a stone, on the parent or 'old stand,' directing that in the evening it should be replaced by a frame hive, and the swarm cast on a sheet four or five feet from entrance, but when they came to do so they found the swarm gone (I should mention I saw the queen in the box). Again, on Thursday the 12th inst., I observed a swarm gathering on a high tree. I may mention, *en passant*, that 'Excelsior' seems to be the motto with swarms this year. With some difficulty we got the skep under, and jostled them in. I carried them over to the old stand, sent the parent stock away, and having feasted my eyes with a long look at a fine queen, I turned the skep over on the stand, but observed they were coming out so fast that I sprinkled them, and put a wet cloth over the skep. I was called away to attend to *two* other hives that were swarming at the same moment, and whose swarms so mixed in the air I could not tell when they clustered which was which; but I threw them into a bucket and tied cloths over them, and left them where I got them while I ran to make ready frames, and it was sundown when I was ready to hive the first swarm, but when I lifted the skep it was as bare as Mrs. Hubbard's cupboard. As these are the only swarms that ever left me so, I have come to the conclusion that it is not wise to put them on the old stand till you are hiving at nightfall; indeed, I usually tie up the swarm directly it clusters in the skep, leaving it in a cool outhouse till night. I hope more of your readers will give us their experience.—J. B. O'Bryen, *Boston, Oranmore.*

AVOIDING INFECTION.

[242.] Might I suggest that you should, either through the *B. B. J.* or your monthly *Record*, give a short article showing the best precautions to be taken to prevent carrying foul brood from one apiary to another, what disinfectants to use about the person and clothing. I have never yet seen this pest, and do not want to, but being a district secretary of the Lincolnshire B.K.A., I visit a good many bee-keepers about here, and do a good deal of manipulation for some of them, and it is, of course, quite within the bounds of possibility that I might come across it, especially as it seems to have reached Yorkshire, and I

know one or two bee-keepers have done business with the firm so unfortunately afflicted with it. From what you have written I surmise the ordinary carbolic soap is useless. Doubtless there are many district secretaries of other Associations, as well as others who help their neighbours, who are not desirous of either carrying the disease from one to another, or home unwittingly, that would be glad of the information also. If we cannot cure it there is all the more necessity for the 'prevention which is better.' Weather here wet, dull, showery.—F. J. CRIBB, *Beaconsfield House, Morton, Gainsborough, June 21st.*

[We hope to do something in the direction you indicate when the proper time arrives. Meantime, we may say that as a disinfectant we know nothing superior to carbolic acid, and on this account, if we could but ensure a careful and judicious use of the carbolic spray diffuser when manipulating bees, we should look for a good result from its use; but, like other things, it is liable to do harm if used without the slightest regard to even common-sense precautions, as we have known it to be. It cannot but be beneficial to use in the ordinary manipulation of a beehive a bee-quieter which in itself is so destructive to germ-life as carbolic acid. If not overdone, good effects are bound to result when the agent used in lieu of smoke forms at once a curative dressing to the hive and combs, while the carbolised spray is diffused over the hands and clothing of the operator, disinfecting everything as he proceeds with his work.—EDS.]

SWARMS UNITING.

[243.] Being a novice in bee-keeping, will you be kind enough to advise me what to do under the following circumstances. I have a hive which swarmed yesterday, and alighted about 100 yards away without any one seeing it, until some of my own children found it and got a neighbour to hive it into a straw skep. Then another neighbour lays claim to half the swarm on the ground that one of his hives had swarmed and gone along with mine. Now, Mr. Editor, I will feel very much obliged if you will put it through your valuable *Journal* whether it is probable for two swarms to come off, and alighting on the one branch, go into one skep without any fighting or other disturbance.—JAMES HALL, *Blackhill, Durham.*

[It is not at all uncommon for two swarms, issuing at same time, to unite by clustering on the same branch; and though they do occasionally quarrel after being hived, it more frequently happens that they join forces quite peaceably.—EDS.]

'BACILLUS GAYTONI.'

[244.] Referring to my case (query 54 and letter 207 in *Journal* lately), kindly allow me to report that placing the inverted skep beneath the frame hive on May 23rd seemed so effective that, on 31st, I gave it a super of twenty-one sections; and on June 13th (the twenty-first day), as the clergyman who gave the skep happened to be here, we removed it, driving afterwards its bees into the frame hive. We found scarce any brood and very little honey, and only a handful of dead bees in top of skep. Yesterday I considered the hive so flourishing that I gave it a second super on top of the former, which was crammed with bees. So your advice has in this case proved most successful, and again I thank you for giving is so kindly.

Weather rather unfit for honey harvest, but promising.—J. DIGBY RUSSELL, *Kinnetly Rectory, Parsonstown, June 24th*, 1890.

CLAIM FOR SWARM OF BEES.

[245.] I shall be obliged if you, or any of your readers, can give me the name of the County Court judge who decided the case of Heage *versus* Beeton, noted in Vol. XVII., No. 375 (p. 376) of the *Journal*, and the name of the County Court. Also whether it was reported in any other, and, if so, what paper.—H.

BEE RECIPES.

[246.] The following is copied from *Five Thousand Receipts in all the Useful and Domestic Arts, &c.* By Colin Mackenzie (G. & W. B. Whittaker. 1824):—*To avoid injury from Bees.*—A wasp or bee swallowed may be killed before it can do harm by taking a teaspoonful of common salt dissolved in water. It kills the insect and cures the sting. Salt at all times is the best cure for external stings; sweet oil, pounded mallows or onions, or powdered chalk made into a paste with water, are also efficacious. —FRED. HODGSON, *Kingston-on-Thames.*

EARLY MORNING SWARMING.

[247] I have understood that bees generally swarm between ten a.m. and four p.m.; but this morning, while at breakfast, at half-past seven, the well-known sound was heard, and soon afterwards my swarm was safely hived. Is this not another instance of bees not keeping to rules? It was an exceedingly large swarm, and lodged in a currant-bush in an awkward position, which necessitated a different method of proceeding when taking the swarm. I tied two poles together to form a pair of 'shear legs' over the bush, and then hung the skep so as to be capable of being raised by the suspending cord. The bees all, or nearly so, got up into the skep, when it was raised and lifted right away to the stand they are to occupy; and now (four p.m.) some of them are coming home looking as if they had fallen into a bag of mustard.—HAROLD H. LINDON, *Higher Bebington, Cheshire.*

At Abingdon, near Oxford, the following inscription may be seen on the sign-board of an inn kept by one William Honey:—

'Within this Hive we're all alive,
Good liquor makes us funny;
If you are dry step in and try
The flavour of our Honey.'

WIGTOWNSHIRE BEE-KEEPERS' ASSOCIATION.

At a meeting of the Wigtownshire Bee-keepers' Association, held in Stranraer on 20th June, the annual show of honey, &c., was postponed to the 19th September, to be held in Meikle's Hall. Mr. J. Ross, Reformatory, Stranraer, exhibited to the members a sample of super foundation made by him. The meeting expressed their high approval of the same as a first-class sample, and Mr. Ross was thanked for this new development of the bee industry in this district.

BEE SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

July 8–11.—Hampshire B.K.A. in connexion with the Royal Counties' Agricultural Show at Winchester. Hon. Secretary, H.B.K.A., Rev. W. E. Medlicott, Swanmore Vicarage, Bishop's Waltham.

July 9.—Middlesex B.K.A. in connexion with the Ealing Horticultural Society's Flower Show at the Royal India Asylum, Ealing. 9*l.* in prizes for honey and appliances. For entry forms apply to Mr. Charles Dyer, Hon. Sec., Longleat, Ealing.

July 16-17.—Notts B.K.A. in connexion with the Notts Agricultural Society's Show at Wollaton Park, Nottingham. Entries close June 21st. Schedules, &c., A. G. Pugh, Hon. Sec., N.B.K.A., 45 Mona Street, Beeston, Notts.

July 22.—Ripon Agricultural Show. W. Harland, Secretary, Ripon.

July 24-25.—Lincolnshire Agricultural Society, 25*l.* in prizes for honey, hives, &c. Entries close July 8th. Stephen Upton, St. Benedict's Square, Lincoln.

July 25-26.—Wilmslow and Alderley Horticultural Society, 7*l.*, and silver medal in prizes for honey. Open to Lancashire and Cheshire only. Hon. Sec., T. D. Schofield, Oakfield, Alderley Edge. Entries close July 12th.

August 8–9.—Bramhall and Woodford Horticultural Society. 8*l.* 10*s.* and silver medal in prizes for honey, open to Lancashire and Cheshire only. Entries close July 26th. Lists from W. Slater, Rose Cottage, Bramhall, near Stockport.

September 3–4.—Lancashire and Cheshire B.K.A., in connexion with the Wirral Agricultural Society's Annual Show at Birkenhead. Nearly 30*l.* value offered in prizes. For schedules, &c, apply Sec. Wirral Agricultural Society, Birkenhead. Entries close August 15.

September 19.—Wigtownshire Apiarian Association. Eighth Annual Show at Stranraer. 12*l.* in prizes for honey. J. Balfour Robertson, Hon. Sec., the Manse of Leswalt. Entries close September 2.

The Windsor and District Branch of the Berkshire B.K.A. will hold their annual exhibition in the Home Park, Windsor, early in July. (The date remains to be fixed by Her Majesty the Queen.) For entry forms apply to the Hon. Sec. Show Committee, W. S. Darby, 1 Consort Villas, Arthur Road, Clewer.

Queries and Replies.

[119.] *My Prospects.*—I had a very strong hive of hybrid Ligurian bees, which on June 4th threw a heavy swarm. On the 14th I opened hive and found a lot of queen-cells and one queen hatched out. As I wanted a cast from this hive I left the *loose queen* and *two cells*, cutting out the rest. They have not, however, 'cast,' and on examining the hive last night (19th) I found no eggs, and as far as I could see no queen. 1. Is the hive queenless, or is it too soon to expect a young queen to start laying, *i.e.*, five days since I saw the young queen in the hive? If the former, would they accept *a black queen* (they are rather funny tempered)? They are fairly strong, on ten frames, most with sealed brood, but no super, as I removed it after they swarmed. 2. Can you form an opinion as to my prospects of a harvest this year? I have seven stocks—(*a*) The one above; (*b*) swarm from ditto on eight standard frames full of brood; (*c*) nine frames full, and super just put on; (*d*) ten frames, eight of them packed with sealed brood, skep just taken off with a lot of honey, and super put on; (*e*) Stewarton, two body and two super boxes, and of each full; (*f*) ditto, strong swarm in one body-box, queen filling every cell and just supered; (*g*) straw skep, cramful of bees. I have been waiting for these to swarm, but the weather has prevented it. 3. Is it too late to drive them and put in a frame hive with any chance of a surplus this season, or shall I cut a hole in crown and put supers on top of skep? With the exception of *d* and *e*, none of them have made any surplus yet, as transferring from straw skeps threw them back. The white clover is, however, now out, and this is a good district.—MOUCHE-À-MIEL, *Wolverhampton.*

REPLY.—1. We reply to your first query by asking another: Why did you cut out queen-cells when you desired a second swarm (or cast)? The chances of it coming off were lessened by your proceedings. Young queen may be several days yet before she begins to lay. 2. There is every prospect of your doing well if weather is favourable. 3. Allow the skep to work a super

[120.] *Self-hivers a Success again.*—After reading, on page 254 *B. J.*, 'J. M. N.'s' account of the 'self-hiver,' I thought I would give it a trial. On the 7th of this month the morning opened up fine and bright, and seemed like a day on which bees would swarm. I fitted up a self-hiver on Mr. Bennett's principle, and connected it to a straw

hive, a small one with six frames of comb in it, and I found it was not in the way of the bees going to and from the hive at all. In a few days a lot of drones collected in the hiver, so I removed it and emptied the drones out of it, and again replaced it. On Friday morning, the 20th, I received my *B. J.*, and read the account, on p. 294, of the self-hiver failure, which was very disheartening; but in less than two hours after I read this I had news that my bees had swarmed, and before I could get home the bees had hived themselves just where they were wanted. My wife told me that the swarm arose as usual and clustered on a hazel-nut tree just by for a minute or two, then they spread all over the tree, and from there they came back to the hive. But while the bees were out the queen was seen trying to find her way out all along the tunnel till she came to the empty hive, and the bees returning joined her there. I then removed the hiver and put the swarm into its place at once. I examined it next day and found queen all right, and that she had laid eggs on two frames, while bees were busy at work, carrying in pollen. The self-hiver was in work thirteen days. Hoping this report will be one of many, I hope we shall see one from Mr. Bennett himself.—T. PRITCHARD, *Bucknell Station, Salop.*

[121.] *Foul Brood.*—1. On going to one of my hives for a frame with some eggs to give to a queenless colony, I discovered foul brood in it. I send you by this post a piece of comb affected. The hive had nine frames well covered with bees and full of brood; only two frames were badly affected; these I burned (except what I send you), the remainder I have plentifully sprayed with salicylic solution (No. 1, *Guide Book*) bees and all. I am feeding them with syrup and solution No. 1. Next morning I found a few bees dead on alighting-board and the ground, but the remainder look well, being brisk in their flight and rapidly passing in and out, plenty of pollen being brought in. I have never had foul brood before. Will you kindly advise me? All I know I have learned from the *Journal* and the *British Bee-Keeper's Guide*. 2. In the early stage of the disease, do the grubs, when dead, assume a white appearance and like thick cream? I forgot to say I lifted the hive off the floor-board, and washed the latter with salicylic solution well: was this right?—PROPOLIS, *Woodford.*

REPLY.—1. Though the comb sent is of quite recent build, and full of regularly distributed larvæ, foul brood is unmistakably there; continue your precautionary measures, and trust to the season to help you in keeping the disease in check. A warm, good season for honey is of great assistance when treating foul brood. But in any case be careful not to carry the disease to any healthy stock you may possess. 2. The larva, when attacked with foul brood, loses its crescent shape, turns yellow and flaccid-looking, and dies. The putrid remains then gradually become coffee-coloured, and of an adhesive sticky consistency, easily recognised when once seen. Healthy brood, on the contrary, is of a pearly white colour, plump-looking, and distinctly ribbed along its whole body; it lies curled round in half-moon shape, and when a few days old completely fills the bottom of the cell.

[122.] *Re-queening.*—I shall feel obliged if you will advise me under the following circumstances. I have three stocks. No. 1, a last year's cast in a large hive, holding twenty frames running from front to back of hive; they cover sixteen or seventeen of the frames, and there is brood in fifteen of them, but at present there seems to be very little honey, although the bees work well. No. 2 is in an ordinary hive holding eleven frames, which are well covered with bees and plenty of brood. Last week I put a crate of sections at the top, but at present, although they have found their way through the honey-board, they are not working in them. No. 3 is a stock made up of driven bees, headed by a young queen which I saved because the stock from which she came did exceedingly well in a skep last year. I expected good results from her, but have been very much disappointed, as, although I feed them the same as other stocks, they have increased very little. I examined them last week, and found brood in six frames, and the stock seems healthy, covering seven or eight frames; I put two frames in centre of brood nest. Will you advise me—1. If I am right in leaving the whole of the large hive free to the queen to lay in, or if I should confine her on ten frames, as I saw you stated ten to be enough for brood nest, and if it would be best to extract from the outside frames as soon as the bees fill them? 2. Can I do anything to help No. 2 besides putting a frame in brood nest from time to time? 3. Would it be advisable to re-queen my stocks this year? Nos. 1 and 3 are headed by last year's queens, but as I have said, No. 3 does not appear to be a very good specimen. No. 2 was last year's swarm, and is headed by an 1888 queen. 4. If you advise me to re-queen any, please say how I should proceed, and what would be the latest date at which it would be safe to rear young queens, as I do not wish to interrupt the bees during the honey-flow. 5. May I consider my stocks of good average strength?—INQUIRER, *Atherstone.*

REPLY.—1. If the large hive is suited for tiering up, we should select ten of the twenty frames, and set them over the body-box to form a surplus chamber, using excluder zinc between it and the brood chamber below. 2. The present dearth of honey caused by adverse weather accounts for the bees storing nothing in the sections. You can only wait for sunshine and warmth. 3. Not in the case of No. 1 hive; and with No. 2, we should not go to expense or much trouble in re-queening till next year. No. 3 queen should certainly be done away with. 4. In re-queening adopt the Simmins' method of direct introduction, but preserve the deposed queen till new ones are known to be accepted. Autumn

will be the most suitable time for you to operate, but if you have young queens by you it can be done at any time. Don't rear queens late specially for the purpose. 5. Yes, two of them.

[123.] *Delayed Fertilisation of Queen.*—On Whit Sunday (now five weeks ago) a swarm came from my skep hive, and as no second swarm has come it was decided to drive the bees into a frame hive. On doing so (on Thursday, 19th) only a small quantity of honey was found, but no brood. Can you account for this? I did not notice the queen pass up when driving, and on looking for her afterwards could not find her, but, being a novice, she may have escaped me. Bee-weather is not very good here just at present. I consider my stocks (two) were as well forward three weeks ago as they are now. We have rain more or less nearly every day, but are hoping for a fine time at the moors. Bee-keeping is very popular here. We are a population of about seventy families, within a distance of two miles, and I can count seventeen bee-keepers amongst us.—R. Crookall, *Ravengloss, Carnforth.*

Reply.—It is quite probable the queen may still be in the hive and not yet have commenced to lay, seeing the wet weather you report may have delayed fertilisation. A few days, however, will decide the point, and you must again examine the combs to search for eggs or the queen.

[124.] *Transferring to Frame Hive.*—Would you please inform me, through *B.B.J.*, what I ought to do in the following case:—I began bee-keeping early in June by buying a swarm in a straw skep. I wish to transfer it to a frame hive, but as it has already been some time in the skep, could I transfer it at once, or would it be better to leave it till the bees have built the combs in the skep? Also, will they require to be fed? Your advice as to how they should be treated would greatly help a—Working Man.

Reply.—To successfully perform the operation of driving and transferring a stock of bees and combs from a skep to a frame hive is quite beyond the powers of one whose bee-keeping experience does not extend one month back, and unless you can enlist the services of some one possessing the necessary knowledge and experience, it would be hopeless to expect you to succeed. Better leave the bees as they are until autumn, and meantime endeavour to see some one transfer a stock. A practical lesson gained in this way is of the greatest assistance to one like yourself, and would help you more than a whole volume of instructions.

[125.] *Being Watchful.*—I believe in the proverb 'Prevention is better than cure,' hence my letter about three weeks ago respecting the prevention of foul brood. I regret to say that to-day I found one of my four hives was attacked. I do not think it is very bad yet, but of course it will get worse. In the spring it was very weak, but by constant and careful attention it is now one of the strongest hives, working well in supers. Out of twelve combs I found four containing diseased brood, and these I burnt. I send you a small sample for inspection. Will you please to advise me as to getting rid of it, as well as preventing other hives being attacked?—E. G.

Reply.—Would that readers were all as solicitous about the health of their bees as yourself. There is just a trace of foul brood in comb sent, but the fact of the bees increasing in numbers is proof that continuous care on your part will overcome the mischief. Since the hive is supered, you might confine your present precautions to giving camphor on floor-board, so as to cause no disturbance above. Don't do more by way of manipulating the other hives than is absolutely needed, and watch carefully when autumn robbing starts.

[126.] Free for years of foul brood, I was vexed to find on Saturday traces of it on one frame of a stock which has done good service, and this year has given a swarm of five pounds, besides doing well with honey-storing. The infected frame had only about a dozen dead grubs, but what first arrested my attention was the presence of two capped queen-cells, while several were properly torn open and empty. One of the two I found had within it a putrid mass with an odour to match, and the other cell had apparently only a mass of dried white bee-food in it. 1. I sprinkled a quantity of water over the infected part, and removed the two bad cells. Have I done enough? Of course, I shall watch carefully. 2. I have an excellent stock which is storing well, but its queen is, I fear, spiteful enough to trouble my neighbours. How can I best supplant her, so as not to cause a check?—T. F. K.

Reply.—1. Water will have no effect in curing foul brood. We would rather request you to send us a small piece of comb containing what you consider infected cells, and let us determine the matter for you as to whether diseased or not. It is not usual for foul-broody stocks to yield five-pound swarms, and do well with honey-storing. 2. Remove her in autumn and re-queen them. Personally, however, we would try and retain the queen so long as her progeny are such excellent honey-gatherers. You may reduce the viciousness by seldom interfering with the bees.

[127.] *Renewing Combs of Skeps.*—I have two straw hives, which have had bees in them for five years, and swarmed on the 10th. 1. Would you advise me to take out the old comb and honey? And, 2, the best way of taking bees from the honey?—J. Hammond, *East Dereham.*

Reply.—1. If you desire to renew combs of skeps, the best time to do it is twenty-one days after swarming. The bees may then be driven, and no brood will interfere with the success of the operation. 2. By the process known as 'driving.'

[128.] *Uniting Bees—Renewing Combs.*—I have two skep hives close together, one a this year's swarm from the other. At the end of the honey-flow I want to unite the old stock to the swarm without putting them into a bar-hive. I have not one to spare, but the swarm skep is a very good large one, the other an old bad hive; so can I not unite without driving both? I want to do so, if possible, and put the bees from the old hive into the other. Any advice will be acceptable. 2. I have a bar-frame hive with combs in it four years old. Ought they to be renewed? When and how? 3. Is old comb like that liable to produce foul brood? At present it has two tiers of section crates on it, and all in a most flourishing condition. It has always done well since I have had it.—BEE-KAY.

REPLY.—1. You *may* unite the bees successfully without driving both lots; but we should think the little trouble involved is well worth preferring to the risk of having a many bees killed. If you try to make one driving suffice, make a hole in the soft soil deep enough to contain the driven bees, and in this lay a newspaper or a table-cloth. In the evening drive the one lot of bees into a skep and, when uniting, throw the driven bees in a heap into the hole, and at once place over them the other skep. Don't allow any of the driven bees the means of escaping at the sides, but compel them to ascend in a body; and if the job is well done, none will be killed. But we are bound to add that some persons have failed in carrying out the above operation, though we never had a mishap with it. 2. Don't renew combs unless they require it; you may readily ascertain this when inspecting them. Renew, also, only one or two at a time, giving comb foundation in full sheets.

[129.] *Queen Killed.*—Please state, 1. Whether the queen sent is an old or a young one, and whether or not she has been fertilised? I found her on the ground outside the hive which had swarmed the previous day, swarm being returned after cutting out queen-cells. I suppose it can only be the old queen? 2. If that is the case, will the hive now be without one?—C. CALVERTT, *Fairspeir House, Oxford.*

REPLY.—1. Queen sent is not an *old* but an adult queen, and has evidently been either killed by the bees themselves, or through some mishap in returning the swarm. 2. The bees will raise another queen.

[130.] *Transferring.*—1. I have a swarm and a cast of this year which came out of the same hive (straw), and they are hived in straw hives. I should like to transfer both of them to *one* wooden hive. Kindly explain how I am to accomplish this, and what is the best time to do it. 2. I find my bees to-day beginning to kill off the drones. Is not this rather early for them to do so?—AMATEUR.

REPLY.—1. The bees of both skeps must be driven early in September, the queen of the top swarm being secured in the operation, and preserved in case the younger one is killed when uniting. 'Driving,' 'uniting,' and 'transferring' bees and combs from skep to frame hive are distinct operations, each requiring lengthy directions for one with no knowledge whatever as to how it is done, and it would be advisable to read a description of the work in one or other of the cheap guide-books published. 2. Drone-killing at this date is quite abnormal, and is caused through stoppage of income through bad weather.

[131.] *A Dwarfish Queen.*—I enclose a queen (?) from one of my stocks, and want your opinion of it. It looks so small to me that I would ask: 1. Is it a queen or a fertile worker? 2. If the former, is it a virgin queen? At Easter I examined this hive and found the bees fairly strong, and I saw some brood. At Whitsuntide I examined it again, but could see no brood; bees very weak and few in numbers. I failed to find the queen, so concluded it must be queenless. I then gave two frames of brood and eggs, that they might raise a queen. I examined it again to-day; the bees do not seem to have increased in numbers, and I can find *no brood;* bees are on about four frames. I could not see any remains of queen-cells, but I found this *little queen* (?) strutting among the workers. I promptly grabbed her and send her to you. 3. Is there any difference in the look of a fertile worker and an ordinary worker? My other stocks are strong, but have gathered no surplus yet.—J. WHYMARK, *Wiston, Colchester.*

REPLY.—1. Bee sent is a small queen. 2. She bears no appearance of fertilisation, and is no doubt a virgin. 3. None whatever in outward appearance.

[132.] *Making Artificial Swarm.*—A friend of mine has had a straw skep of bees in apparently good condition. During the past four or five weeks about the size of an ordinary swarm lay out underneath the floor-board, not working and refusing to swarm. Some days ago I drove them into a standard hive, giving them six frames, one having honey-comb, the remainder foundation, and put them in stand of stock hive, removing it some distance away. Have I done wisely, or could you suggest a more excellent plan?—MAGILL.

REPLY.—With only one stock of bees to deal with the plan adopted was the only one to follow, and if care were taken not to rob the skep of too many of the young bees all will go on well, supposing the weather was warm at the time the swarm was taken from it.

[133.] *Skeps on Frame Hives.*—How soon after placing a skep of bees on bar-frames of new hive may the skep be removed? and if any bees be in it how should they be removed?—NOVICE, *Castleblayney, Ireland.*

REPLY.—The skep should be left on frame hive till honey season is over, when it may be removed as a super, the combs cut out and honey appropriated.

Echoes from the Hives.

Bilton, Harrogate, June 24th.—In this district hives have swarmed moderately, though I have only got one from seven stocks (five bar-frame hives and two skeps), one of the latter swarmed on the 10th June. A little honey was gathered early in May, but very little indeed since; the white clover is now in bloom, and we are having showery, thundery, and rather windy weather. If the same continues two or three weeks longer all will be over for this season. The honey gathered is very dark, but of good flavour, and nearly as thick as heather honey.—G. DUFFIELD.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication. All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

E. W. (Chiswick).—You must not leave it for bees to 'clear out the cells' of the diseased brood. Foul brood is present, and the wisest course is to destroy the combs, frames, and bees. As the stock is weak, it will be labour thrown away to endeavour to cure it.

G. FALSE (Brighton).—The comb is affected with foul brood. See reply to 'E. W.'

A KENTISH BEE-KEEPER (Aylesford).—We consider that our observation regarding the size of hive shown at Rochester is justified by your own measurements, viz., 2 ft. 4½ in. × 1 ft. 9 in., and 4 ft. high. We are pleased to learn of the good results you have from these hives, and that they are satisfactory to yourself in working; at the same time a hive with outer case of thick timber (⅞ in.) two-inch space all round between outer walls and body-boxes, the latter being also of boards same thickness, each holding fourteen standard frames; and when, according to your description, it is tiered up three storeys high, holding forty-two standard frames, we submit that it is a hive of 'gigantic proportions,' and that the term used was an appropriate one.

NORTH LINCOLN.—On rare occasions bees do take possession of an adjoining unoccupied hive as a surplus chamber, but usually there is some other means of entrance to it beyond the ordinary one in front. Perhaps if you examine closely this will be the case in your instance.

WM. ALLAN (Norham-on-Tweed).—You cannot 'get some drone bees put into your hive,' neither need you wish to do so. There are other causes beyond the absence of drones to account for bees not entering sections. Wait till weather improves.

JOHN A. HAYWARD (Shepton Mallett).—The queen is a hybrid Carniolan, is quite young, and has most probably been killed in combat with one of her own sisters.

C. CLARKE (Derbyshire).—You are wrong in supposing that a cast (or second swarm) headed by a young queen will issue simultaneously with a top swarm with old queen at its head. By some mischance the old queen must have been destroyed some days ago; probably a swarm came out unseen, and losing its queen, returned to the hive, to issue again nine or ten days later as described. If this is so, there was nothing unusual in its parting into two lots, each accompanied by a young queen.

*** *We are again compelled to hold over several queries, &c., till next week.*

THE

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BEE-KEEPERS' RECORD AND ADVISER.

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Editorial, Notices, &c.

APPLIANCE MANUFACTURERS AND BEE-SHOWS.

The few remarks we felt it our duty to make last week in reference to the non-appearance of several leading manufacturers at the Royal Show at Plymouth, have, we are not sorry to find, brought forth a rejoinder (printed on another page) from one who, we may presume, gives utterance to the views generally held by manufacturers as a body.

If this be so, it clears the way for a reconsideration of the whole question as it presents itself to the two parties directly concerned, viz., the Committee of the B.B.K.A., and the manufacturers or dealers who stage goods at the various shows under their management. We have not failed to notice a growing tendency, during the last year or two, on the part of some manufacturers to boycott—to borrow a hateful term as applied to bee-keeping—our leading annual exhibition, and have vainly endeavoured to arrive at the real cause of this paradoxical proceeding—for surely it is a paradox when shows are rendered unattractive and uninteresting by the very persons who are supposed to reap the most benefit from them.

At last, however, if the communication referred to is taken as representing the feeling of manufacturers generally, we learn that a deep-seated grievance exists, in that appliance dealers consider themselves treated with quite unnecessary harshness by the Committee of the B. B. K. A., in whose hands are placed the control and management of the chief annual show. How far the allegation is correct it is not our present purpose to inquire, but we would venture the opinion that if our bee-shows were not controlled by gentlemen entirely free from even the suspicion of personal interest from the *l. s. d.* point of view, we should not have long to wait ere they would go down in popular favour, for there is nothing so distasteful to the general public as that a body of men working outwardly in the public interest should at the same time form a sort of trade clique, with an eye to personal profit all through.

Far be it from us to charge anything of this kind against our appliance manufacturers; we only desire to point out the fact that if a fair and equitable arrangement is arrived at between an entirely independent body of gentlemen—exclusively non-traders—and themselves, their interests, and the interests of bee-keeping will be best served by leaving the management of our shows in the hands of the former

It would seem from the letter of Mr. Blow that the *crux* of the whole affair lies in the fact of manufacturers being unrepresented on the Committee of the B. B. K. A. Now, while there may in past times have been good and sufficient reasons for the exclusion of a particular class of traders from serving on the Committee, we are of opinion that it would be decidedly advantageous to both the Committee and to manufacturers if this disqualification were now removed. There is no need for the smallest fear that anything approaching to control of the executive will ever pass into the hands of dealers—they would themselves, we are sure, admit the fatal mistake of any policy tending in that direction; but we fail to see why manufacturers as a body should not have the power of nominating annually from among themselves a gentleman to serve on the Committee and represent their interests, just as is now done by the several county associations affiliated to the B. B. K. A.

If this were agreed to, it involves no transference of power to manufacturers beyond what we consider they are fairly entitled to, viz., a spokesman to make those views known on the various questions in which they are specially interested, while at the same time it would have the good effect of—to use our correspondent's own words—'keeping the Committee in touch

with a body of men whose interests and views cannot in equity be altogether ignored.

Personally, we hail with sincere pleasure the opening prospect of a complete understanding being arrived at. Bee-keeping is not yet an industry sufficiently important or well established to stand the strain of opposing interests pulling in opposite directions, and it is only by 'pulling together' that we can hope to see that progress which we trust is earnestly desired by all.

THE BRITISH BEE-KEEPERS' ASSOCIATION.

NOTICE.

The next quarterly meeting and *conversazione* will take place on Tuesday next, July 15th.

The meeting of County Representatives will take place at 17 King William Street, Strand (third floor), at three o'clock. Secretaries of County Associations are requested to advise their representatives of this meeting.

The *conversazione* will be held at 105 Jermyn Street, commencing at six o'clock. Members wishing to introduce subjects for discussion, or to submit new inventions and improvements relating to bee-culture, are requested to communicate with the Secretary, in order that the same may be placed upon the agenda.—JOHN HUCKLE, *Secretary, Kings Langley, July 8th*, 1890.

THE LAW WITH REGARD TO BEES.

A case was tried in which Bethia Davis, widow, of Tarrant Keynston, sued George Cook, miller, also of Tarrant Keynston, for twelve shillings and sixpence, the value of a swarm of bees detained by him. Mr. Brennand appeared for the plaintiff, and said that though the amount claimed was but small, the case raised an important point in law with regard to the proprietorship generally in bees.

The facts of the case were simple. A swarm of bees belonging to the plaintiff pitched about twenty yards from the hive in defendant's garden. Application was made for leave to take them and refused.

Mr. Brennand then read extracts from Blackstone, showing that the owner retained the rights of proprietary in bees as long as he kept them in sight, and said there was a general practice in the district that the proprietor of a swarm of bees might follow and claim them wherever they chanced to alight.

His Honour said that, with regard to matters relating to animals of that kind, he would uphold the rights of proprietary in them as long as the owner kept them in sight.

Mrs. Davis was then called, and said she was in her garden on May 28th. She saw her bees swarm and watched them alight on a bush in the garden next to hers. She never lost sight of them during that time. She went to defendant as soon as they were settled and asked leave to take them: he refused, but she went home and got ready to hive them. On coming back she found defendant's garden door locked: the bees were still in the bush. She then sent her nephew, and he was refused admission.

George Bellows, the nephew, said he went to Cook at 9.30 on the night in question, and asked permission to hive the bees. He was refused, and Cook threatened to assault him if he went into his garden. The Superintendent of Police was asked about it, and said he had a right to take the bees. He went to defendant's door next morning and shouted his name, but got no answer. There were only a few bees left then.

Mr. Brennand then said he could produce an experienced bee-keeper to speak as to the custom of fetching the bees when swarmed, but his Honour said it was unnecessary.

The defendant, Cook, said he had not detained the bees. They had come in on one side of his garden and gone out the other. Plaintiff's bees had caused him a lot of trouble, and hindered him in his work in the garden. It was impossible for plaintiff to have seen the swarm alight, as they settled on the branch of an evergreen oak, some of them being on the ground. He had threatened to strike Bellows on account of the latter saying he would burst the door open.

In cross-examination defendant said he had not thrown water on the bees. On the question as to the value of the bees, Mr. Alsford, bee-expert, said he was a bee-keeper and had had considerable experience. The value of a swarm of bees varied considerably—from 10*s*. to 28*s*. A second swarm was not so valuable as a first swarm. He could not state the exact value of this particular swarm as he had not seen it. Mr. Cook, defendant's wife, said it was a second swarm. The judge said he had no hesitation in giving his verdict, which would be for plaintiff. Damages, 10*s*.

FEEDING BEES.

I have often been puzzled to know why the *British Bee Journal* advocated feeding bees so much, but I see the 'why' now. Last winter was mild, and early spring was very favourable for the rearing of brood. During the fore part of fruit-bloom bees revelled in sweetness, and all went merry as a marriage-bell: and then a freeze, when ice formed as thick as window-glass, and since that time for a month there was scarcely any honey. My desire now is not so much for surplus honey as it is for a living for my bees, and enough of them to cover the combs.

SWARMS.—I have had but one this year from an apiary of one hundred colonies, and that issued on the last day of May. I saw them coming out, and caught the queen: she was not clipped. I caged her, and removing the old colony from its stand, placed an empty hive containing comb in its place, with the caged queen at the entrance. The swarm clustered, but soon returned with the cry, 'Where is mother?' As soon as they had entered the hive it was removed to a new stand, the queen

released, and the old one returned to its former place. If I had desired honey more than increase I would have left the swarm upon the old stand, but I have combs that I wish to cover with bees, and wanted the old stock to furnish young queens.

Many times I have known Italian bees to swarm before even starting queen-cells, and as I desired many, commenced feeding liberally. In five days I opened the hive, and what was my chagrin to find that a queen had emerged from the cell and destroyed some of the embryo queens? I removed four frames containing queen-cells, and left the young one in the hive. To be sure that I had not removed the young queen, in a couple of days I looked the removed combs over and found that none of the cells had been destroyed. On one comb I saw a young queen, and the lid over her cell still hanging by one side. I always try to save all the queens I can from the first good swarms.

Re-queening.—A poor season is a good time for weeding out poor and worthless queens. During a good season all is rush and hurry to save the flow of honey, and there is no time to spare for this work. When I want to catch a worthless queen I remove the hive, and place upon its stand a hive containing combs and brood in its place, with queen-excluding zinc over the fly-entrance. The bees that return from the fields enter it, and I brush off all the bees from the combs of the old hive, using them elsewhere. If they cluster upon the outside I drive them in with smoke until the workers are all in, leaving the queen and drones, which I destroy. If I have not a laying queen to give them I wait until they have built queen-cells, when they will accept a sealed cell, which will furnish a young queen in time to destroy those that they have built.

As the treatment that a worker's egg receives determines whether it is to be a queen or worker bee, I like to have my queens reared by choice bees, even if the eggs are laid by a chosen queen. If the food determines their future destiny, the workers must impart some of their qualities to the embryo queen. A poor stock may rear a queen from the eggs of a choice mother, and the queen not be equal to another one from the same mother reared by better bees. All should aim at excellence in rearing of queens and drones.—Mrs. L. Harrison, *Peoria, Illinois.*

A SWARM OF BEES ON A MAN'S HAND.

On Saturday afternoon, a hive of bees belonging to Mr. Champion, Trevone, near Padstow, swarmed in the usual way, but from some cause did not seem disposed to gather in a cluster so as to enable Mr. Champion to hive them. For some time he watched their motions and observed that they were constantly collecting in small distinct groups, and adhering to the tops of some marigolds running to seed, and then dispersing again. After a short time Mr. Champion got a small quantity of balm, with which he gently rubbed the palm of his left hand. The highly fragrant and agreeable odour of this herb quickly attracted the bees, which began to gather into and surround his hands, and amongst the earliest arrivals he distinctly noticed the queen-bee. Her arrival was quickly followed by the whole swarm, which in a very brief time arranged themselves into a large cluster depending from his hand. A hive having been brought, Mr. Champion held it under his hand, and with a slight shake the whole cluster fell into it and was soon properly secured. Mr. Champion, who takes a great interest in bees, performed a similar feat in the market-place, Padstow, a few years ago, with a fugitive swarm of bees.—*Western Morning News, June* 30, 1890.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor *of the "British Bee Journal," 17 King William Street, Strand, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 1st page of Advertisements.)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

PLYMOUTH SHOW.

Manufacturers and the Committee of the B.B.K.A.

[248.] You, Mr. Editor, I have always looked upon as being keenly alive to the 'signs of the times;' but evidently you are in deep darkness with regard to the causes of the comparative failure of the bee department of the Plymouth Show. When I say failure, I mean the absence of the chief manufacturers of bee-keeping appliances. I wish to say plainly that the cause of their absence on this occasion is a revolt against what we consider the tyranny of the Committee of the B.B.K.A. It is useless to longer disguise this fact, it has been growing for some years, and this year culminated in an agreement between the firms of Abbott Brothers, George Neighbour & Sons, and Thomas B. Blow, to abstain altogether from showing on this occasion. I believe I am right in stating that similar dissatisfaction existed in the minds of Mr. Baldwin and Mr. Howard, though they were not parties to this agreement.

I also wish to state plainly that the sooner the Committee of the B.B.K.A. opens its eyes to certain facts, the sooner will the shows again become a success! I do not wish to enter into any controversy on this vexed question, therefore I will not state what the grievances are—suffice it to say that they are well known (or ought to be) to those in power in the B.B.K.A., for most of the persons concerned have been

spoken to on the matter. Personally I can bear witness to the unwillingness of the Committee of the B.B.K.A. to take a reasonable view of the subject. For years I have endeavoured to get manufacturers represented on the Committee, as I think in common justice they should be, in order that their views may be ventilated, as well as that they as a body should be properly in touch with that Committee.

I have myself been nominated several times for a seat, and once was duly elected owing to fact that the candidate next higher on the list was disqualified by an informality, the said informality being overcome by the help of a member at the time, and so rendering his election valid by what was at least a bit of sharp practice on the spot. I thus lost my seat, though, had I known at the time what had taken place, I would have adopted legal measures to secure my rightful position on the Committee.

Then, as there seemed a likelihood of a manufacturer being elected to a seat on the Committee, a resolution was passed at the next annual meeting disqualifying manufacturers altogether from election, and I may reasonably presume that this resolution was aimed at myself. I need say no more on this score—though smarting under the injustice done to manufacturers generally, and to myself in particular—except to add that when some one was needed to represent the B.B.K.A. on the question of railway rates before the Board of Trade, they did not hesitate to ask me to undertake the task of representing the Association and pleading its cause (which took many days of anxious attention), though I was apparently deemed unfit to serve on the Committee itself. I merely mention this fact to show that, though badly treated, I bear no animus towards the Committee of the Association, or I should not have undertaken the work. In fairness, too, I should like to state that previous Committees rather than the present one are the cause of all this trouble. The question is how to do away with the strained relations at present existing, and to my mind the proper course is for the Committee to invite the leading manufacturers to meet them, and to state their case. I am sure if this is done everything can be easily arranged, and all will go on smoothly again.

Your further remarks, Mr. Editor, as to all the manufacturers being exceedingly busy, and thus abstaining from exhibiting, have, of course, some weight: but in no previous season has this fact been allowed to stand in the way by those firms who are now conspicuous by their absence. I am sure you do not sufficiently appreciate the cost of this showing; remember, please, that all our profits have to be made in three months, and we may be idle during the remaining nine, though the staff of men has to be kept going. For this short season expenses are enormous compared with the turnover, when we include the heavy cost of catalogues, advertising, and exhibiting. This last item is probably the heaviest, and when it is considered that manufacturers practically make the show by their display of goods, I contend that we are entitled to some consideration, instead of being tyrannised over in the way we have been. How many exhibitors are there who, when they have gone to all this expense and trouble, and have gained the highest prizes, have seen so little result that they might exclaim with Pyrrhus, 'One more such victory and I am undone!' Many have thus been undone, and if we look at the number who have started in this business during the last few years, and notice those who have fallen by the way, who have left it for something more profitable, or who have become bankrupt, we shall find it shows a far greater proportion of failures than in any other business I know of. You yourself remark that some of those well-known makers are seeking other uses for their plant and machinery and other outlets for their labour, so that they may not be almost at a standstill for nine months in the year, and then run night and day for three months at fearful trouble and expense to those involved, and for which very scant thanks are often received. I trust that you will open your columns to our just grievances in this matter, so that things can be put on a better footing between manufacturers and the Committee.—THOMAS B. BLOW, *Welwyn, Herts.*

THE ABSENCE OF EXHIBITS ENTERED FOR COMPETITION AT SHOWS.

[249.] The public are much indebted to you for the remarks made in your report of the Plymouth Exhibition, as inserted in your last issue. The general management of the bee department at the 'Royal' has always been satisfactory, and if the B. B. K. A. is to maintain its *prestige* with the general public, it must adopt some means to ensure the exhibition of appliances which are entered for competition. Why should not the following rule, as applied to all other portions of the exhibition, be extended to appliances in the bee department?—PRO BONO PUBLICO.

'In order to prevent the non-exhibition of animals which have been entered for the Show, thus causing unnecessary preparations, expense, and the disarrangement of the showyard, any person making any entry will be subject to a fine of 2*l.* for each entry of horses not exhibited, of 1*l.* for each entry of cattle not exhibited, of 10*s.* for each entry of sheep or pigs not exhibited, and of 2*s.* 6*d.* for each entry of poultry not exhibited, unless a certificate, under the hand of the exhibitor or his authorised agent, be lodged with the secretary of the Society before the day of exhibition, certifying that such non-exhibition is caused either by—(1) The death of the animal or animals; or (2) contagious or infectious disease (confirmed by the explanatory certificate of a veterinary surgeon); or (3) by its becoming ineligible for the class in which it has been entered. Such fines to be recoverable as debts to the Society, and until payment to debar all persons owing them from exhibiting at the future meetings of the Society.'

FOUL BROOD.

[250.] As I have been a little prominent in bringing under notice the prevalence of foul brood, and as there may be some expectation that I should exert myself to find a practical remedy, I think it will be interesting to many of your readers to hear what course I have adopted. I therefore send you a short statement thereon. Being possessed of a stock which has been affected for three seasons with the disease, and which was a month ago in the worst stage, I proceeded to remove and destroy the queen, and in a few hours introduced a young queen of last autumn. She commenced at once to lay as freely as the reduced colony allowed of. At the end of, say, a fortnight I carefully examined the hive, and found that I had gained nothing, the condition of the larvæ being no whit better than before. I thereupon decided to destroy all the combs and the quilts. The bees were driven into a skep, in which they were domiciled for, at least, forty-eight hours, but under no restraint. There were probably about a pound of them. The hive was subjected to a thorough washing with soap and soda and scalding water. In the meantine a small (second) swarm of bees appeared, and I decided to add them to the others. I then supplied the hive with three empty combs from the rear of another stock, and introduced the united bees. A day or two after I found some excitement among the bees, and upon going to the hive, saw a ball of bees at the entrance and a young queen in the midst, which I removed. This was undoubtedly the queen which had led off the small swarm. The bees now set to work in earnest, and very soon needed more frames, and are now rapidly filling up the hive. Yesterday I made a careful inspection, and am most glad to tell you that every evidence of disease has disappeared, and nothing could be more gratifying to an enthusiastic bee-keeper than the appearance of the massed brood cells all regularly and evenly capped, giving expectation of a profitable result within the present season.

Now I fully admit that I have proved little, as the act of uniting fresh bees mars the completeness of the experiment: but this I may say, that my suggestion as to re-queening the colony as a first step has received some support, as I am quite sure that the queen which I introduced was the one that remained at the head of the colony, and that the one that I rescued at the entrance was an infant. Now it may be objected that the process was hardly a profitable one, as it involved the destruction of the hive fittings and the stored honey, as well as the addition of an independent swarm of bees. To this I would say that neither the infected stock nor the swarm were sufficiently numerous in themselves to be of any practical use in the present season, whilst, if my expectation is well founded, I have the prospect of a good return, and have rid myself of a source of contagion highly dangerous to eight or nine other stocks in close proximity. I may add that the operation was carried out just a fortnight since, and I shall be pleased to give you the result of further inspections which I shall make from time time to time. My opinion is that just as good a result would have followed, though on a lower scale, if I had not united the other bees.—JESSE GARRATT, *Meopham, Kent.*

SELF-HIVING.

[251.] In response to your invitation, it gives me much pleasure to send you a brief report of my experience of a self-hiving arrangement I used lately.

My hives stand near the ground, and the construction in front is a little unusual. The joists whereon the floor-board rests are prolonged forwards, and are deepened in the projecting part by a short piece of joist tacked on below. Between these deepened joists is nailed the alighting-board, sloping down from the entrance in the usual way. The only porch I use consists of a piece of loose board, resting on top of joists. By bringing two of my hives *vis-à-vis*, therefore, with the ends of the projecting joists in contact, there is formed a cavity having a V-shaped bottom, formed by the two alighting-boards. Removing the two loose porch-boards, and tacking on instead one piece of queen-excluder zinc (square ends) reaching from the front of one hive to the front of the other, the arrangement is complete, and the bees have a surface of excluder about sixteen inches square to work through.

Having a strong hive, which I thought likely to swarm, I put this contrivance in position: this was about three weeks before swarming occurred, and I do not think the bees were very much incommoded by the perforations. Of course, a certain number of dead bees accumulated at the bottom of the little yard, mostly drones.

On Friday, June 20th, on the 21st, and on the 22nd, a large swarm issued, but on each occasion after clustering returned to the parent hive, paying no heed to the frames of comb and foundation (but no honey) that were prepared for their reception, snugly covered by quilt.

On the 23rd, being rather tired of this monotony, I modified the experiment somewhat. About midday, and before any sign of swarming was visible, I quietly opened the parent hive and took therefrom two frames of hatching brood, without any queen-cells, together with the adherent bees, closing up frames again. These brood frames and their bees I placed in the other hive with six frames of foundation, to tempt, if possible, the imprisoned queen when the swarm issued again. Whether owing to my interference or not I can't say, but that day no swarm made its appearance, though the weather was fairly favourable. As the evening was warm, and the bees remained on the two brood combs in goodly numbers, I left these in the empty hive over-night.

On the 24th the bees swarmed in great force, only to return to the parent hive as before. I

then altered the arrangement: returned the two frames of brood to parent hive; removed excluder from the little yard, substituting perforated zinc, so that bees had ventilation, but no exit here: removed queen-excluder to top of frames in the empty hive, where it just fits; propped up roof of this hive, so as to give bees free exit all round. The only passage for workers was thus across the little yard, and upwards through frames of empty hive, and out through excluder placed on top. Result: no swarm at all on 25th, 26th, 27th, or 28th, though the weather was not unfavourable on any of these days. On the evening of the 28th, I removed the whole contrivance and gave bees their normal entrance.

On examining hive on the 29th, I found about half-a-dozen queen-cells, from one of which I think a queen had hatched. I saw no queen, but this would not have been easy in such a densely populated hive; but to my surprise there were neither eggs nor very young brood. Has the old queen been dethroned? I saw nothing of one amongst the dead bees. I have already taken up too much space, so will make no comments.—ARTHUR FRYER, *Laurel Mount, Ramsey, Isle of Man.*

[1. If you have any desire to utilise the self-hiver, we think you would do well to try one made exactly as designed by Mr. Bennett, and used as he proposes. On your plan a large 'yard-space' is open to the bees in which they have room to take wing; this, we think, quite subverts the idea of the designer of the self-hiver, his notion being, as we take it, to form a tunnel along which the bees, in their headlong rush, carry the queen with them into the new hive before she has time to take wing. Your second plan, of forcing the bees to pass through the new hive to and fro in their work, must have caused immense confusion and hindrance to work with bees endeavouring to use the ordinary entrance, and we are glad *that* failed. 2. There seems no doubt but that the old queen has perished through some mishap.—EDS.]

ANOTHER SUCCESS WITH THE SELF-HIVER.

[252.] After my successful experiment with above as reported on page 254 of *B. B. J.*, I made one for a friend who wished to give it a trial, and placed it in position. Nothing more was heard of it for some time as my friend, being exceptionally busy, paid little or no attention to his hives. At length his attention was called to it by his gardener, who gave it as his opinion that the bees had swarmed, and upon examination, sure enough, his statement proved correct. Not only had the new hive been taken possession of, but it had been occupied for several days without the knowledge of the owner. Since then all has been going on well.

I sympathise with 'A. P.' in his fruitless trial, as noted on page 294, *B. B. J.*, but I cannot help thinking there must have been something wrong in the cases he reports. If the hiver is properly constructed according to Mr. Bennett's directions, so that there will be a clear course and plenty of passage-way, and then rightly placed in position, I cannot see how the experiment can fail. I expect there will be further reports from these parts before long, as some others have hivers in use—but the weather has been anything but favourable for some weeks past.—J. MCNEECE, *Tullylish Rectory.*

YOUNG QUEENS FRATERNISING.

[253.] On June 1st I made an artificial swarm from a hive, leaving two queen-cells sealed. This was one too many. On June 9th the old hive, from which the swarm had been taken, threw off another small swarm, which I returned, and everything seemed to go on well. But on the 25th (sixteen days after return) a fine swarm was found near, which I am pretty sure could not have issued from either of my other hives, as they showed no very recent or sealed queen-cells. On examining the hive I found a fine queen, young, of course, a reduced population, and no other old or new queen-cell. Am I right in concluding that the two queens had probably held a joint occupation for the whole or the greater part of these sixteen days? Or must I fall back upon the improbability that this large swarm was a vagrant, no other hives standing nearer than half a mile or so to the apiary?—SAMUEL JORDAN, *Bristol.*

[Your first theory is probably correct, as adverse weather does sometimes cause young queens to 'dwell together in unity' till a swarming day comes round.—EDS.]

BROOD AND QUEEN-CELLS IN BELL-GLASS.

[254.] On June 6th I found brood in several of my sections, also several supers which I have examined for my neighbours. Last week I was sent for to hive a swarm for a gentleman, and while there I examined a bell-glass which I had placed three weeks before on the skep from which the swarm had come. The gentleman was very pleased to tell me that the glass was full of honey, but I found two-thirds of it drone brood sealed. I was about to clear out the lot when I discovered three queen-cells in it, which were all sealed next day. The skep contained three-year-old combs, and no queen-cell below. No excluders had been used in this case. I have never yet used excluders, but I am afraid after this I must do so. I have never known of so many drones before. I am of opinion that, in consequence of the unsettled weather, the bees have built more drone comb than usual. Is it not a very rare thing for queen-cells to be in bell-glasses? I should very much like to know the experience of your readers. I have a lot of borage in my garden, which I find very useful in the unsettled weather.—R. FRENCH, *Royal Spa Apiary, Leamington, July 2nd.*

[Bees will build queen-cells wherever there is brood when preparing to swarm.—EDS.]

A BEE-KEEPER'S FIRST SWARM AND ABBOTT'S FRAMES.

[255.] On Friday night last I took from a 'self-hiver,' which I had attached to one of my hives, over six ounces of dead drones. The entrance to the hive was choked with clustering bees in the hiver, and they also crowded under the porch. I removed the hiver, and resolved not to use it again. It may do for small hives, but I think not for large colonies, such as mine was.

On Saturday, June 28th, I took out six frames from my No. 1 hive, and made an artificial swarm (now called No. 3). In it I placed two frames of comb with syrup, and I also placed two similar combs in No. 1. Before they had not a scrap of food. These combs were filled last autumn, and so came in well for the present emergency. Yesterday (July 2nd) at 12.30 a large natural swarm came off, I think from No. 1. They knit upon a thorn hedge close by, but too high for the woman who was to have hived them for me. The factory people were leaving the mill for dinner at the time, and the women came out of their houses to see what was the matter. What with bees and women there was much excitement. I dare say it is forty years since bees have been seen in the act of swarming in this village, and few of the onlookers had seen a swarm before, there being no other hives within a radius of eight or nine miles besides my own. I was sent for at 2.20 p.m., and with the assistance already mentioned the first natural swarm I ever saw in my life was nicely hived in the skep. The skep had been duly 'dressed,' and with a stone lifting up its edge we left them till evening. At six o'clock I placed them in their permanent hive, making a gap between the frames by removing a few, and pouring the bees into the hive. They were put on six frames of foundation and two full combs of syrup. I now call this natural swarm No. 4 hive.

I think they came from No. 1, although I had taken an artificial swarm from it only last Saturday, as its bees had so completely deserted the sections. If the weather is fit to-morrow night I purpose taking off the sections from No. 1 and placing them over No. 3, and also another over No. 4. No. 3 I shall have to examine and see how it is situated as to a sovereign, and I suppose No. 1 may afford me a chance of putting all right in this respect. Bees in No. 2 are working in the sections beautifully.

I should like to mention here a matter which I consider very important to persons who adopt broad-shouldered frames and make their own hives. In *Modern Bee-keeping* a cut is shown of a broad-shouldered frame. Again, in *Adviser* for July 1889, this same cut appears as Abbott's. Now that drawing is not a true representation of Abbott's frame. The ear to the right-hand end of the Abbott's frame goes from you; in the Illustrations mentioned it leads towards you. This simple matter has caused me some annoyance by preventing me from purchasing Abbott's frames, as they are not interchangeable with those of my own make. I followed the book and was thus led into this difficulty, until I discovered the difference when it was too late to alter them. I may say the same mistake occurs in the *B.B.J.* for July 25, 1889, p. 325, in the article entitled 'Bee-keeping for Cottagers.'

I have read the *B.B.J.* with interest for several years, and have received much valuable information from it, and I have always been pleased to see the ready manner in which you are willing to assist any who require it.—J. F.

[In your first trial of 'self-hivers' we fear you have not given sufficient attention to ventilation. The fact of dead drones being found in the hiver is not considered to be a demerit. Referring to your artificial swarming operations, we cannot account for what occurred later, seeing that your plan of making the swarm is not fully detailed. The cut of Abbott's broad-shouldered frame which has given you trouble is the original drawing made by Mr. Abbott himself; therefore, if you have cause for complaint it is not against *it*.—Eds.]

CURIOUS EFFECT OF BRINE ON BEE-STINGS.

[256] Seeing, in your last issue, salt mentioned as a cure for bee-stings (246, 'Bee Recipes'), I am induced to give my own experience in brine. It is now nearly four years since I became a bee-keeper, and at first I not only suffered severely from stings, but got plenty of them (see 'My Experiences,' No. 623, p. 463, and 'Further Experiences,' No. 657, p. 503, Vol. XIV. of the *B.B.J.*); now I am inoculated and seldom get stung.

Being at Droitwich this spring I bathed in the Royal Brine Swimming Bath, the water in which is most potent, being ten or twelve times stronger than the ocean, and the density four times that of the Dead Sea. I had not been in many minutes (probably three or four) when I felt great pain in my right forearm, as if being stung severely by bees. On examining, I perceived a round raised mark, about the size of a five-shilling piece, exactly like a piece of capped worker comb; each cell being clearly defined by an angry-looking thin red line of demarcation, and each cell closed by a pale yellow capping. This curious appearance remained whilst I remained in the bath (some twenty minutes), and for half an hour afterwards, when it died away gradually, no cell bursting nor matter exuding. Next week I again had a bath, and felt the same pain, though in a lesser degree, but this time only one yellow spot, about the size of a threepenny-piece, appeared, without any angry red line round it, and died away like its predecessors in about the same length of time. Neither during the time between the baths nor since have I experienced any pain in my arm, nor has there been any mark to show that such a thing had been. I was as badly stung on other parts of my body and on my left arm as on my right, and cannot understand why the brine should have had an effect only

on one spot. Whilst in the bath the first time I felt rather queer, but not so the second time, and attributed the feeling the first time to the heat of the bath buildings.—J. HUTCHINSON, *Cheltenham.*

APPLIANCE DEALERS.

[257.] I venture to hope that the questions raised by 'D. Cockburn' and 'Bee-Kay' will be further ventilated in your columns. I feel sure that it will be to the advantage of dealers and bee-keepers generally that it should be so, especially if some leading dealers will favour you with their views in the matter.

One of our chief dealers undoubtedly did a good thing for the trade when he led the way with 'Cash with order,' for his motto, and although I am sure it was the best thing to do, I believe that it lies at the root of many of our difficulties. When the dealer has the 'cash' there is no particular ground for anxiety to be ready for the rush of orders which he knows will come in May, and which one would think could be met by increasing the number of packers according to the experience of former years.

Let me trouble you with my wail. On May 3rd I sent a cheque for 2*l.* 4*s.* 9*d.* to an old-established firm for foundation, crates, and frames, and waited patiently for nearly a month, when, in reply to my inquiry, they regretted the delay, and the goods should be sent as soon as possible. In the middle of June a vigorous protest brought me notice that as much of the order as possible should be forwarded immediately. In three days more the parcel arrived by passenger train, and then I found that the frames were missing—just the thing I wanted most. Now, if I could only have known that the want of these frames was delaying the delivery of my order. I could easily have provided myself elsewhere, and prevented considerable loss and annoyance. If the dealer had not received the 'cash' he would have delivered the articles he had in stock as soon as possible, with a view of getting it, and I should have found out much earlier where the difficulty lay. Hence I conclude that the 'ready-money principle,' as applied to the bee-trade, is anything but an unqualified advantage to bee-keepers.—GEORGE CHILDE, *Semington, Trowbridge.*

HONEY AT THE NORTH-EAST AGRICULTURAL SHOW IN BELFAST.

[258.] For some years past the North-East Agricultural Association of Ireland have scheduled honey on their prize list, but owing to the show being held invariably as near as possible to the longest day in the year, the exhibits have never been numerous. This year the exhibition came off on the 19th and 20th of June, and, as usual, in Belfast. There were only nine exhibitors of honey with eleven entries, six of which were one-pound sections, and the remaining five extracted honey. About half of each class was of last season's produce. This year's sections were not well filled and would scarcely have weighed sixteen ounces apiece. Some of the run honey was about the darkest in colour ever seen staged in Ulster. It forcibly suggested the question, is aphidean honey worthy of being allowed to compete with the pure nectar? Mr. W. R. Orr, of Strabane, officiated as judge, and the only pity is that he had not more difficulty than he experienced in making his selections. The honey prospect in the North-East of Ireland, which at the beginning of June boded well, has received a great check by the chilly, showery weather experienced during the last three weeks. Many bee-keepers were most sanguine at the prospects of the best honey harvest ever known, but they now fear that crates of incompleted sections will, in many cases, be their only reward.—H. W. LETT.

SPARROWS.

[259.] Referring to query 115, page 310, I am surprised at any one doubting the fact of sparrows being *most destructive* to bees. A quarter of an hour in my apiary would convince any one. The other day, when the weather was unsettled, I was attracted to my apiary by a lot of sparrows flying over a currant-bush—there was a swarm just settling, and sparrows catching bees on the wing *by scores.* All through the year, *when bees are flying,* I am tormented with them, and am *certain* they eat far more live bees than do swallows, as they outnumber them here by at least thirty to one, and are at it all the year round. Neither traps nor poisoned corn abate the nuisance. I take every nest I can find, but from the situation cannot use a gun. I often see them on a busy day pop down and snap bees off the alighting-board when loaded with pollen. —W. G. BURKITT, *Buttermere Rectory, Hungerford, June 29th,* 1890.

IRISH BEE-KEEPERS' ASSOCIATION.

Early in the year, the large number of old-fashioned bee-keepers in this locality, and the consequent desirability of some instruction being afforded them in more advanced methods, were pointed out by Mr. Lett in the pages of this *Journal.* Acting on his suggestion, a course of lectures on modern bee-keeping was commenced here on 20th inst., under the auspices of the Irish Association, by Mr. Read, who was accompanied by Mr. Chenevix, the Hon. Sec. Seldom have such lectures been given under more agreeable circumstances and with more satisfactory results. This was largely due to the kind and hearty co-operation of Mr. and Mrs. Reginald Digby, in whose demesne the tent was pitched, and of the Rector, the curate, and others of the inhabitants of Geashill, amongst whom some of the ladies were conspicuous. An extremely picturesque and well-sheltered spot was chosen for the tent near the front of Geashill Castle, the residence of Mr. Digby, where the lecturer, the Secretary, and those of the neighbouring

gentry who attended the lectures were hospitably entertained. That nothing might be wanting, the weather had all the charm of a real, but not a scorching, summer day, coming when recent rains had laid the dust and freshened the verdure. The visitors to the tent numbered about 100, a very good attendance for a country village, and some of them were intensely interested. Mr. Read performed the ordinary manipulations, explaining the various branches of his subject with great clearness and fulness, and answered the numerous questions of ardent learners with untiring assiduity. A specimen of the Association's standard hive was left, to serve as a model, with Mr. W. Lawrence, a carpenter and intelligent bee-keeper, who kindly assisted Mr. Read in some of his manipulations. The receipts at the entrance were not large, as a nominal sum only was charged for admission. If, however, to these be added the subscriptions of some new members received by the Secretary, it is probable that the balance of cost to the Association will not be great, so much having been done by the inhabitants in supplying vehicles and labour, and, indeed, in every possible way, to reduce the expenses to a minimum.

Queries and Replies.

[134.] *Foundation breaking down.*—1. How are swarms made for selling? 2. I have been unfortunate with my new brood foundation. At least half of the new frames put in have broken down, sometimes after they are full of eggs. Is this the fault in the wax? — E. Rogbon.

Reply.—1. By 'driving' a sufficient quantity of bees and their queen to form a swarm. 2. If the foundation used is made from genuine beeswax the fault lies in its being insecurely fixed in the frames. Full sheets of foundation, when given to swarms, should be 'wired,' unless used and fixed in the frames by an experienced hand.

[135.] *Sainfoin Honey.*—Will you kindly tell me if sainfoin honey is ever gathered in Cheshire, in the neighbourhood of Altrincham? Last year I saw some sections with the yellow cappings peculiar to this honey, said to be gathered in this district.—Boudon.

Reply.—With a long experience of the county, we know of no district in Cheshire where sainfoin is grown in honey-producing quantities. It is almost exclusively grown in the south.

[136.] *Noise in Hives.*—I have been much puzzled lately by what I consider, perhaps through my ignorance, an uncommon noise in one of my four bar-frame hives. It sounds more like the deep 'burring' sound of a distant lawn mower than anything else, stopping and starting again very unevenly. 1. How do your account for this noise? 2. Why should it be in only one hive, the hive in question having sent out a strong swarm about eight days ago, as, indeed, have the other hives? In the following case what do you advise:—A stock having had supers on for some time, and built comb in nearly all sections and unsealed honey in many, having swarmed about a week, are working, but very slowly, in their crates, only having bees at work in two or three sections. 3. Shall I take off crates and remove a frame or so and return the crates?—Livo.

Reply.—1 and 2. The noise will no doubt be caused by the bees 'fanning,' while the uncommon sound given forth may be explained by some very simple matter, only to be found out by careful inspection of the hive. You need attach no importance to it. 3. Hives, after being nearly depleted by swarming, are apt to present a sluggish appearance for some days afterwards. The sections would stand a better chance of being completed if removed to the swarm, supposing the latter to have nearly filled its hive with combs.

[137.] *Cutting out Queen-cells.*—1. Will you kindly say if cutting out queen-cells is a good way of preventing swarming. 2. Does it injure the bees?—Yorkshire.

Reply.—1. Cutting out queen-cells prior to the issue of first swarms is so troublesome an operation—especially when supers are on—that we cannot advise it as a preventive of swarming. It diminishes the chances of a swarm *re*-issuing if cells are removed before returning the swarm to the parent hive, and so in this way is useful. 2. Only in case of carelessly removing all cells when there is no queen left in the hive, and no eggs from which to rear one.

[138.] *Maiden Swarms.*—An old bee-keeper here (a skeppist) informs me that he has had hives which have swarmed early, and have not thrown out a cast or second swarm, which have swarmed again later on in the season. As a bee-keeper of seven years, nothing of the kind has come under my notice. I should be glad to hear if such cases have come under your notice. —Geo. Duffield, *Bilton, Harrogate.*

Reply.—Very probably your friend means that his top swarms have thrown what is known as a maiden swarm, which they sometimes do. We never heard of a swarmed hive sending out another swarm late in the season.

[139.] *Queen Cast Out.*—Enclosed I send a queen-bee found this morning underneath the flight-board of one of my frame hives. Do you think she is an old queen, or what will be the cause of her death? The hive has not swarmed yet, nor do I see any outward sign thereof. I have the sections on, but there are very few bees; in fact, my bees are doing very little super work yet. There will not be an ounce of honey in any of them yet. We have had about seven days of rain in succession. It was very fine this forenoon, and the bees did enjoy it, but all is now changed again to rain. If we do not get better weather soon, my sixteen hives will do badly, although I was

anticipating great things this year. They have commenced to cut the clover here this week. I took my first sections, well filled, on the 1st of July last year. So much for the difference of season.—W. B. CHAMBERS, *Usworth Village, co. Durham.*

REPLY.—Queen sent is not old (probably hatched last year), and evidently has been killed by her own bees. Why, it is not easy to say, except that sometimes bees do depose their own queens, and replace them by young ones in this way.

[140.] *Removing Bees.*—I am resuming bee-keeping, and my eight stocks of bees in bar-frame hives left with a cottager two years ago have a tolerably long railway journey in prospect. I am anxious to take every possible precaution in their transport; will you therefore give me the benefit of your valued advice? 1. As to time of removal. Should it be midwinter, after Christmas, and preferably in sharp, frosty weather? 2. As to ventilation. Suppose when the bees are put up for the winter in September or October, a strip of perforated zinc two inches wide by the full length of the hive is laid across the frames at one end, under the lower quilt or covering; when the hives are to be removed the quilts might be turned back one inch and so fastened as to expose this zinc strip all along its length. Would this ventilation be in excess of requirements—the hive entrances being opened six inches wide and a strip of zinc nailed across them too? 3. It would perhaps be a good precaution to have each hive securely corded, and the spring-cart that conveys the hives to and from railway stations might have a foot of stable litter spread in the bottom of it?—AMANISHAH, *Clevedon.*

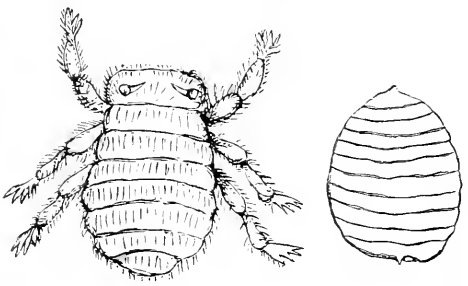
REPLY.—1. Bees may be safely removed any time when weather is frosty. 2. If zinc were set on as proposed in September, the bees would carefully stop up all its perforations with propolis. It would do as you say if zinc is put on a day or two before starting, but we would prefer to have a light frame made of half-inch stuff, same size as hive top, and with a centre bar, which when screwed down into hive sides would keep frames from moving. This frame, covered with coarse canvas or cheese-cloth, would allow the bees to pass over top of frames while keeping them from escaping. If weather were very cold a quilt might be laid on the canvas, and very little ventilation below would be needed. 3. A very good precaution.

[141.] *Transferring to Frame Hive.*—Having decided to take up bee-keeping in bar-frame hives, I have obtained a this year's swarm of bees which are in a straw skep and have been hived about a month. I wish to move them into a bar-frame hive, and will be very much obliged if you will inform me in your next issue of the best way to do so without destroying or damaging the comb and honey in the skep, which (the bees having established themselves for a month) I believe must be there. Can I transfer the combs into the new hive as well as the bees? A friend of mine who keeps bees told me he thought I could not do so at present without destroying the comb. Is he correct?—NEWFORD WADE, *Tydu House, Newport, Monmouth.*

REPLY.—Read replies to 'A Working Man' (p. 321), and 'Amateur' (p. 322) in last week's *Journal.*

[142.] *Bee Parasite.*—For some time past my bees, which apparently came well through the winter, have shown a growing weakness in numbers, and on opening the hive a second time last Saturday to find the queen, which was difficult, owing to the number of drones on the combs, we at length discovered her, but, much to my regret, also found that she was infested with parasites. The queen carried about a dozen, and a few are scattered over the workers. I enclose her with a few bees which we scooped up in a small box which accompanies this note, and should be very glad indeed to have your advice as to what course to adopt. There is a little brood in the cells, and, as before stated, the drones are very numerous—in fact, taking them away, the colony would be a mere handful.—EVERSLEY, *Eversley, Hinton Road, South Beddington, Surrey.*

REPLY.—The queen and bees sent are infested with the parasite known as *Braula cœca* or blind louse. It is not indigenous to this country, nor will it increase here, the atmosphere being, luckily for the British bee-keeper, too damp for it to thrive in. It is usually introduced here on the bodies of imported bees. Fumigating with tobacco smoke will cause them to drop on to the floor-board, when they may be brushed off and destroyed. The floor-board should be afterwards washed with diluted carbolic acid, and if the operation is repeated a few times the pest may



be got rid of. We give an illustration, much magnified, of the parasite as it appears in perfect form and in its undeveloped condition.

[143.] *Surplus Drones.*—Will you kindly advise me regarding a hive which has a large number of surplus drones? I purchased a stock of bees early in September last year, and transferred them into a frame hive with eight frames. On May 1st I gave a crate of sections; I took off five full sections on the 21st, and the bees swarmed next day. On the 3rd of June another swarm came out, since then there have been such

a lot of drones in the hive it quite puzzles me: and my inquiry is what to do with them? Bees are still working in the sections. I am a gardener, and I find bees and flowers and fruit are a very great help to each other, and Eastbourne is a good place for bee-forage. I have to manage bees for my employer; though we have only two ten-bar frame hives they have done well. I took forty-five one-pound sections on the 7th of June; the hives have each two crates of sections on, and although the weather has been unfavourable the sections are filling fast.—R. C., *Old Eastbourne, Sussex.*

REPLY.—The drones must not be interfered with; they always cling to the parent hive, and, after two swarms have left, serve the good purpose of keeping brood warm, by the heat of their bodies, at a time when the number of worker-bees is reduced very much by the swarming.

BEE SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

July 8–11.—Hampshire B.K.A. in connexion with the Royal Counties' Agricultural Show at Winchester. Hon. Secretary, H.B.K.A., Rev. W. E. Medlicott, Swanmore Vicarage, Bishop's Waltham.

July 16–17.—Notts B.K.A. in connexion with the Notts Agricultural Society's Show at Wollaton Park, Nottingham. Entries close June 21st. Schedules, &c., A. G. Pugh, Hon. Sec., N.B.K.A., 45 Mona Street, Beeston, Notts.

July 22.—Ripon Agricultural Show. W. Harland, Secretary, Ripon.

July 24–25.—Lincolnshire Agricultural Society, 25*l.* in prizes for honey, hives, &c. Entries close July 8th. Stephen Upton, St. Benedict's Square, Lincoln.

July 25–26.—Wilmslow and Alderley Horticultural Society. 7*l.*, and silver medal in prizes for honey. Open to Lancashire and Cheshire only. Hon. Sec., T. D. Schofield, Oakfield, Alderley Edge. Entries close July 12th.

August 8–9.—Bramhall and Woodford Horticultural Society. 8*l.* 10*s.* and silver medal in prizes for honey, open to Lancashire and Cheshire only. Entries close July 26th. Lists from W. Slater, Rose Cottage, Bramhall, near Stockport.

August 14.—Goole and District Bee-keepers' Association. Show of flowers, vegetables, and honey. Entries close August 5th. Particulars of A. Woodhead, Edinburgh Street, Goole.

September 3–4.—Lancashire and Cheshire B.K.A., in connexion with the Wirral Agricultural Society's Annual Show at Birkenhead. Nearly 30*l.* value offered in prizes. For schedules, &c., apply Sec. Wirral Agricultural Society, Birkenhead. Entries close August 15.

September 19.—Wigtownshire Apiarian Association. Eighth Annual Show at Stranraer. 12*l.* in prizes for honey. J. Balfour Robertson, Hon. Sec., the Manse of Leswalt. Entries close September 2.

Echoes from the Hives.

Portland Square, Bristol, July 1st.—There seems little prospect with me of surplus honey this year. At the beginning of June I had a twenty-one pound crate nearly finished, but have not been able since to get it completed. Stocks have increased well, however, and are in good condition, and the best I can now hope for is that in 1891, with second-year queens and good stocks, there may be a harvest. Swarming fever has been high this year despite plenty of room, but is now over. I fancy, judging from the length of time between hatching and laying, the queens are somewhat delayed in mating. For instances:—1. A hive (the one I wrote about last week) artificially swarmed on June 1st, had no eggs or young brood on June 19th, but both on June 27th. 2. A hive which threw a swarm on June 9th, exhibited a queen on June 27th, but no eggs. 3. Another with dates exactly as the last, excepting that the queen was not sighted, the hive being very full of bees. This had no eggs either. Are there any readily distinguishable marks of a fertilised queen beyond the evidence afforded by the brood nest? My bee-work is at Mangotsfield, five miles out of the city.—S. J.

[There is no reason why you should not still secure a fair harvest of honey. With a full three or four weeks of working-time before us, bees would yet do well if this month is favourable. The wet and uncertain character of the weather has delayed fertilisation very much. Fertile queens can only be recognised by experience and the fulness of the abdomen, &c.—EDS.]

North Leicestershire, July 5th.—Another week as bad as the current one will extinguished all hopes of a successful season. The roadsides, pastures, and clover-fields are white as snow with bloom, but with the thermometer at 52° at noon, the bees seem wisely determined to stay at home. Half-filled supers are emptying fast, swarming has ceased, and casting out of drone-grubs has commenced. A repetition of the season of 1887 seems imminent.—E. B.

Notices to Correspondents and Inquirers.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

J. C. (Maryport).—The bees sent are hybrids, apparently a cross between Carniolan and Ligurian. Your only course is to re-queen the hive. The dealer who supplied the queen may have sent you an imported Carniolan as stated, and himself been misdealt with by her not being purely mated.

E. G. (Exmouth).—Received too late—shall have attention next week.

*** *A paper on 'Bee-keeping in Orkney,' and several other communications are in type, and will appear in our next.*

THE

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BEE-KEEPERS' RECORD AND ADVISER.

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Editorial, Notices, &c.

USEFUL HINTS.

Weather.—'Did you ever know a farmer who was not always complaining of the weather?' So runs the saying; and certainly if there is a farmer in the world with the shadow of justification for a chronic grumble on the weather question, that man is surely a Briton. Take as an instance the farmer who calls himself a fruit-grower. In a newspaper now before us we read of '*A Disastrous Fruit Season*:'—'The continuous rains are ruining the Kentish fruit crops: cherries, especially, are suffering. Last week some sorts of cherries were fetching 14*s.* per half-sieve in the London market, but yesterday only 2*s.* 6*d.* could be obtained for the same sorts. The strawberry crop is also greatly damaged by wet, and great quantities lie rotting. Fruit speculators who had purchased in advance will therefore lose large sums of money this season.' The gentle reader will note how carefully we prepare a way for the recording of bad news, by showing bee-keepers that they are not alone in misfortune—for misfortune it surely is to see the precious days passing and still no bee-weather. Bloom there is in abundance, clover and lime-trees flowering very freely just now, but bees can do nothing. For several weeks past there have been hardly any swarms so far as we can learn, so that everything has been at a standstill. What little honey was stored in supers has gone for food, and if an immediate change in the weather is not at hand, bees to be saved must be fed. It is a most unfortunate thing for the bee industry when a season so full of promise as this was finds us in the middle of July with the thermometer varying between forty and fifty-five degrees, and dull, cloudy days the rule.

Partly Filled Sections.—From accounts which continue to reach us, there must in some districts be many colonies with a fair number of partly finished sections on them. If the bad weather holds out much longer, all hope of getting them completed this year will be gone, and we have thought that an arrangement might be arrived at by which such unfinished sections could be completed in the apiaries of other bee-keepers who are fortunate enough to be located where heather is available. They might be sold outright by weight as they stand, or taken on shares. The fact of their not containing much honey would help their travelling safely, and we may say from personal experience that a blend of clover mixed with heather makes the honey of beautiful flavour, and is considered by many to be superior to either kind separately. This would be a far better plan than going to the trouble of extracting a few ounces of honey from each section, with the bother of getting them cleaned up afterwards by the bees before packing them away till next year. It may be necessary in some cases to remove partly filled surplus-boxes and save the honey in them at the expense of a few pounds of syrup used in feeding the bees. If this is done, the combs may be returned to the bees for a week if hot weather comes within the next fortnight, and thus have a chance of being worth extracting.

Self-hivers.—Still further reports are to hand of failure or success with these; and had it been even a fairly good swarming year—which is not now likely—a fair and full trial would no doubt have been recorded: as it is, we must wait another year before deciding on the merits of the hiving arrangement, and we hope to make a personal trial of it next season.

Brood Cast Out.—It is to be hoped that none will discard the warning plainly given, that want is staring stocks in the face when immature and half-eaten brood is cast out of the hive. It is of no use shutting our eyes to plain indications of impending famine in this way, and feeding should at once be attended to. Much need not be given, but a quart of syrup, costing about fourpence, is a small matter compared with the risk of losing a good stock of bees through default in attending to feeding at so critical a time.

Appliance Dealers.—The troubles of British bee-keepers in their dealings with appliance manufacturers, as recorded in our pages, will, we hope, be made a little easier to bear when compared with the 'happenings' in the same 'line' across the Atlantic. In the *American Bee Journal* just to hand we read of a condition of things beside which our troubles are quite small affairs in comparison. Fancy a dealer being 400,000 sections behind his orders! The Editor, who is himself a supply dealer, writes:—'If there is any consolation in the fact that all supply dealers are in the same condition, that consolation may be administered—"for misery loves company." If any one cannot wait their turn, let them call for the return of their money

—here, at least, it will be instantly returned, and that solution of the difficulty will be most welcome to us, for it will be a great relief not to feel compelled to further disappoint our friends —after having done all we could to accommodate them.'

St. Swithin's Day.—Yes, it is the festal day of the good saint of whom so few know anything beyond his being supposed to ensure us a certain number of consecutive days on which rain *must* fall should July 15th happen to be a 'wet day.' The bee-keeper who, with ever lengthening visage, has been looking out each morning for another rainy day, and has unfortunately been so seldom disappointed, will have considered this as the proverbial 'last straw,' beneath which the 'back' of his hope was broken, and, had the outlook as usual made visible nothing but rain-charged clouds, he would have thrown up the sponge and ordered his feeding-sugar forthwith. But as a friend just writes us, 'This is St. Swithin's day and we have no rain!' and so the bee-keeper who pins his faith to St. Swithin may give utterance to his pæan of joy, for as we write the sun shines brightly, the blue sky is visible, and it is a real *bee-day!* If we can only persuade ourselves that the rain has had its 'reign' and will now step down to give the glorious sun a turn, we may have some honey yet.

LINCOLNSHIRE AGRICULTURAL SOCIETY.

Bee and Honey Show at Boston.

We invite attention to the above show, which promises to be a very important one. A liberal prize list is offered for competition—prominent being the prizes of 5*l.*, 3*l.*, and 1*l.* for collection, of appliances. The total sum offered is about 25*l.* in the eleven classes for honey and appliances, and as the date of the show (July 23rd to 25th) gives every chance for the staging of honey in quantity, we hope to see a good display.

Correspondence.

'ROYAL' SHOWS AND THE COMMITTEE OF THE B.B.K.A.

[260.] It is well to find this matter taken up now; but I am disappointed that your correspondent did not see his way to give the whole of the reasons why three firms felt moved into agreement, and thereby to absent themselves from the 'Royal' this year. I suspect that causes other than those charged against the B.K.A. Committee have had something to do in accelerating the action of the gentlemen named, such as the fact that other houses of lesser note have proved equal to themselves on the 'Royal' show-board. A marked dissatisfaction existed at the Norwich 'Royal' at the awards given; and subsequent defeats, with other causes to boot, perhaps, have given birth to this 'triple alliance' in the bee-trade. From my earliest 'Royal' experiences, I must say that I consider the philanthropy of the B.B.K.A. has had its lustre sorely dimmed by the manufacturers. To struggle honestly for success, position, and honour is to be commended; but it behoves one and all to sink petty jealousies and adverse opinions when awards are made, as well as to strive, from time to time, to improve away any defects which a prize schedule may contain. Personally I feel that the manufacturer should have no place on a committee from whence his work is scheduled and his merits adjudged, and while we are makers and vendors of goods, let us —to be above suspicion—abstain from even a wish to be there, and the public will then more readily appreciate the good the B.B.K.A. Committee are striving to do. Standing upon these principles ourselves, if we appliance dealers and manufacturers cannot meet as a body of traders —interested in a special trade—and express, by resolution or deputation to the Committee of the B.B.K.A. our views or desires, apart from the action of any few of ourselves, no good will ever be done, in my opinion.

In the interests of the trade, I have long hoped for a trade conference, as most other trades have, and through this means to ensure 'touch' with the B.B.K.A. Committee, which would keep them alive to our interests as well as their own. The work of any committee is generally through error to perfection, and I am confident that many of the imperfections of the B.B.K.A. could have been removed if there had been anything like unity amongst the manufacturers: but as objections to Show schedules came from individual, rather than from collected, manufacturers, little heed has been paid to others who, single-handed, have championed the cause of the whole trade, and the efforts of men who have honestly desired to work for the benefit of all have been misconstrued, and judged as tending only to the furthering of self-interest. But I admit, if it is considered desirable that one of our number should act as the mouthpiece of the trade at the meetings of the Committee, it will be far better than that the latter should represent manufacturers and look after their interests.

As to exhibiting, I have proved to myself that spending the cost incurred in attending a 'Royal' show in advertising, and giving my customer good value for his money, will give the manufacturer far better results. More especially is this so since the B.B.K.A. considered it needful, in the public interest, to affix prices to the different articles staged. To compel a manufacturer to work to a given price, and that price an unconscionably low one, in my judgment opened the door to dishonesty of purpose, and beyond dispute (as commented upon by the editor of the *Record* at the time) goods were offered below prime cost for the sake of a prize, and in all cases legitimate profits had to be undermined in order to present oneself as selling at 'popular prices.' Had stock-breeders been handicapped by the R.A.S.E. in this way, and compelled to exhibit animals at set prices, and not left, as

now, to ask their value, the 'Royal' must have lost support and the community a great benefit. In this way, then, has the bee department of the 'Royal,' and other shows which copy its schedule, lost interest to the manufacturer.

I grant that from some classes in this year's schedule prices were omitted, but the bad work has been done, and its effects will be felt for some time to come. We see this in the fact that the manufacturer, in order to hold his own, has had to cease advertising largely, and in some instances altogether. This being the case, what inducement is there for one to leave business for show work at a time when orders are daily gaining ground on the staff employed? Still, if the schedule framed by the B. B. K. A. avoided set prices as much as possible while defining the limits of a bee-keeper's requirements, the manufacturer would be content and be stimulated to exhibit, and the public be shown the appliances they should take for apiculture. I would most certainly compel the exhibitor to state his selling price of each article at the time of entry. These, and his goods, to be left to the judges' decision as to merit; but pray let us have as judges men who, by their practical knowledge of apiculture and mechanics, are fit for the task, and not those who are only tolerated through their appointment by the B.B.K.A.—JOHN H. HOWARD, *'The Model Apiary,' Holme, Peterborough.*

A BUSY BEE MORNING.

[261.] How delightful is a bright June morning after wet and gloomy weather! The Chelmsford Show, on June 11th, had been a grand one, but drenching showers at far too frequent intervals had damped the ardour of the most eager sightseer. Yet, happily, I was able to make an arrangement with Debnam, the Essex expert, to devote a morning of the following week to an exposition of his art for the edification of my friends and neighbours. Post-cards were at once dispatched, and on the following Monday eight or nine of us were together, busy among the bees. One face, however, unhappily, was missing—the face of one of the most famous Essex bee-masters, who in regretting his inability to attend, uttered a lugubrious prophecy about 1890, comparing it to the 'black' year 1888, and assuring me that he had not at that date taken a pound of honey! Yet, as the sun was shining brightly, we were a very merry party.

On the previous day (Sunday), when busy, as every parson should be, at his Sunday school, a rumour reached me that the bees were 'out.' Looking through a window I noticed a distinguished *alumnus* of Trinity College, Cambridge (already famous as a photographer), armed with a syringe, and evidently determined to drench the bees before they could wing their flight elsewhere. May I add that my friend and guest is the son of our beloved editor? He, of course, was one of us on the morrow's morning.

Curiously enough, just as Debnam reached the gate, a huge swarm issued from a skep as early as 9.30. Some workmen, busy close by, brought the news, and we all hastened to the spot. The syringe was again brought out, and as the swarm had settled on a high branch, a ladder was procured, then a sort of scaffold was erected, and at length the swarm was captured, the skep into which it had been tossed being placed on a sheet laid out beneath the tree. This done, we proceeded to the bar-frame hives. What a party! The sister of a well-known Q.C. (a thick veil concealing her intelligent features); the 'village policeman,' from the other side of Mount Bures; a scholar of Emmanuel College, Cambridge; a country parson, young but not foolish, eager to learn everything about apples, bees, or indeed anything likely to make country life more interesting: William Dance, the famous gardener of Gosfield Hall. Later on might be seen the churchwarden of a neighbouring parish, his hands carefully covered with gloves, his face shrouded in a veil, his body kept at a most respectful distance. Others, too, were there to whom perhaps the words of Virgil may be applied:—*Multi praterea, quos fama obscura recondit.*

We opened the hives, and happily did not discover any trace of the foul brood which led me to consign four colonies to destruction last autumn. Let me here mention that I caused every article in my apiary to be subjected at that time to the action of sulphur. I know by experience the value of sulphur in destroying the germs of infection. For many years I had been accustomed, as Head Master with a large boarding-house, to disinfect by exposing every article of clothing (indeed anything likely to contain or carry infection) to the fumes of sulphur in a room carefully closed for twelve hours or more. Why should not sulphur kill infection among the bees as well as among the boys? We found almost all the hives in a promising condition, but the new foundation had fallen in more instances than I liked. For several years I had used Dadant's wired American foundation, and had found it all that could be desired. Baldwin, however, has supplied me this year, and nothing can be better than his thick foundation, unless it be the wired. Fresh frames were given; hives which had been put close together were united with the aid of smoke, scented syrup, and so forth. The swarm which we had taken when starting was brought up, carefully scented with peppermint-syrup, as were the bees in the hive with which we proposed to unite them. Then the swarm was shaken out on the top of the frames, covered at once with a sheet, and the work was done. No fighting followed, and a weak stock was made a strong one.

A discussion arose among us later on as to the proper method of holding a queen. I confess that I prefer to take a queen by the wing if she can be caught in that way. It is not every one who can grasp or hold a queen by the thorax without either injuring her or letting her slip. We also discussed the question of the top-bar and the best method of inserting founda-

tion. Those who have used the split-bar as introduced, I believe, originally by Mr. Abbott,* will not care to go back to the wedges or the old fashion in any way: but here again opinions perhaps may differ. Discussion is essential to the advance of truth, and the subject is one on which the experience of others would be of undoubted value.

Debnam told us a good story about the Chelmsford Show, a story which I think is worthy of record in your columns. A lecturer had been discoursing in the bee-tent to a large audience on the harmlessness of bees if quietly and properly treated. No veil (said the lecturer) need be worn. 'Look at me,' he continued, 'I have no veil; bees are buzzing all around, and I am unassailed and unharmed!' Another lecturer then took up *his* parable. Either from deafness or from absence he had not heard what his immediate predecessor had said. He happened to be examining third-class candidates for the B.B.K.A. An unhappy candidate was driving the bees under his inspection. 'You see, ladies and gentlemen,' he began, 'how carefully veiled is this candidate. One of the candidates this morning dispensed with a veil, and was severely punished for his pains, or rather, from his want of them. I object to being stung myself, or allowing others to be stung, so I wear a veil, and advise you to follow suit.' Some of the simple ones, amazed at the curious discrepancy, went to the expert, told him the story, and inquired who was right. The examiner, by-the-bye, happened to be the writer of this article! The remarks, complimentary and otherwise, made upon him by the outsiders to Debnam, he does not deem it advisable to reproduce!—E. Bartrum, D.D., *Wakes Colne Rectory, Essex.*

COMB FOUNDATION BREAKING DOWN.

[262.] On examining a swarm of bees hived on seven full sheets of foundation about ten days ago, I find that the foundation has stretched, and that many of the cells are nearly oblong, while a good part of three sheets have *broken* off (not come *unfastened*, but broken clean off) and fallen to the bottom, and the bees have built it out in a strangely jumbled-up fashion, fastening the three bars together. A neighbour of mine has had a similar experience. We both had our foundation from one who advertises in the *Journal*, and states that it is the *best made*. In my case the foundation was eight sheets, and my neighbour's six sheets, to the pound. I enclose sample, and would like to know if the fault is in the foundation, or whether the breaking down of combs is of frequent occurrence, as I hived a swarm under similar conditions last year and it stood all right. I would suggest to my fellow readers of *B.B.J.* the advisability of an examination of swarms to see if they are all right in this respect, and also as regards food, as there was not a drop of honey either in mine or my neighbour's. I noticed also last week a strong stock carrying out drones, and both *drone and worker brood* and the little honey they had stored above has been carried down into the brood nest during the last week. There is abundance of white clover in bloom close to, but the weather is so cold, dull, and wet that the bees are unable to gather the surplus we are so anxiously waiting for. Hoping yet for brighter days.—G. A.

[The foundation sent is of fairly good beeswax, but contains an immoderate quantity of pollen, which considerably lessens its tenacity, and causes it to stretch and give way under a low temperature. The maker may have been quite clear of any fraudulent intent, but it is certainly not a good blend of wax for the purpose of foundation-making.—Eds.]

THE SELF-HIVER.

[263.] My experience with the self-hiver (Bennett's) is certainly not against that arrangement, and therefore may be taken for what it is worth. I am quite an amateur, and began bee-keeping last year with two hives, a straw (enclosed in wood) and a bar-frame hive. On June 15th the straw hive swarmed in my absence, and was secured in the ordinary way. On my return, on the day following, I put on both hives Bennett's arrangement, and waited patiently for a week. On June 24th my frame hive made the usual humming noise, and the air was filled with bees, as is usual when swarming. But after a little time all the noise came to an end, but without the swarm alighting, all the bees having gone back to original hive. I patiently waited till the 26th, when the second swarm began to leave the straw hive, and settled on a gooseberry-bush. You may guess my excitement, as it was the first swarm I ever tried to hive. I managed it nicely, however, all the bees going quietly into my new bar-frame hive. In an hour and a half I looked at it, and found it utterly deserted. I then remembered that I thought I had seen the queen struggling to get out of the hive while the bees were flying about before alighting, and in case the queen might be injured, I quickly removed the apparatus, thinking that the queen might join the swarm. But the result was as I have stated, the bees went back to their old home. Next day, however—the self-hiver being also removed—the same swarm came off again. Having tried my hand on the previous day, I had no difficulty in putting them into the new bar-frame hive, and had the pleasure of seeing them taking up their abode in it. Finding that 'hiving the swarm' was after all not such a formidable business, I took off the self-hiver from the frame hive on June 28th, but no swarm—top nor second—have I seen coming off yet, perhaps because the weather has been so wet and dull, and perhaps because they have plenty of room. The whole ten frames

* May we here remove an impression which has long been allowed to go uncorrected? The split top-bar was first introduced (or, say, invented) by our respected co-editor, Mr. Cowan, as may be seen by reference to *B.B.J.* for September 1st, 1874.—Ed.

(standard) are, however, well covered with bees. Such is my experience with the self-hiver, and I am now wondering if I may expect any swarm now from the frame hive.—H. ADAMS.

[With a little more experience of bees you may expect more success in a trial of the self-hiver. Of course it was quite natural for the swarm to return to the parent hive, seeing the queen could not have joined it. An experienced hand, on seeing the queen in the hiver, would probably have promptly detached the latter from the parent hive by drawing back the *vis-à-vis* hive an inch or two, and if the detached end of the 'tunnel' had been stuffed with paper to prevent the escape of queen, the swarm would probably have joined her, and taken possession of the hive intended for them.—EDS.]

CLEARING SUPERS.

[264.] I saw in the *B.B.J.* a notice of 'Webster's Super Clearer,' and also a subsequent letter from a correspondent. After perusing these I purchased a 'clearer' and have just tried it upon three hives. It is so successful that I think every bee-keeper ought to know how, by means of this appliance, the sections can be taken from the racks in much less time than by the old system, and also without, as in my case, the least chance of stings. I placed one under the rack at midday. As I could not go to the hive that night, I looked next morning. There was not a single bee in the super, so I removed the rack and emptied it of its contents. I then put the clearer under another at breakfast-time. By eight o'clock in the evening there were but six bees in all the twenty-one sections, and the third time was more successful, the rack being quite empty. I am sure we ought to feel very much indebted to Mr. Webster for bringing forward this most invaluable appliance.—HONEY, *Manchester*.

BEE-KEEPING IN ORKNEY.

[265.] I spent six weeks in the north isles of Orkney last summer, where bee-keeping is almost, if not entirely, unknown. I tried to interest the crofters on the subject some years ago, but at that time they were so ground down under their landlords that I did not press it, knowing that if a crofter were to make a few pounds by his bees the landlord would, in all likelihood, put as much, is not more, on his rent. Now, however, since the crofters' Commissioners have fixed fair rents for them, and they are enjoying some of the advantages that the Irish have had for so long, I thought I might again try to interest them in bee-keeping. I took with me all the finished sections I had ready, and distributed them among the people, and it was curious to hear some of the questions they asked. One man asked if you had to go out at night and put them in (as they do with their cattle); another, 'If they would keep to wir ain grun (our own ground), and seemed very doubtful of the honesty of allowing them to pasture on his neighbours' fields. Another said he did not like to work with anything he could not 'kep wi' a stick;' and one old fellow, who always pretended to know everything, said he always knew 'that *bee*-honey was the best honey of all,' with which I quite agreed. I tried the doctor and the minister. The latter was sure the islands were so wind-swept that the bees would be all blown into the sea, and he advertised in the local papers inquiring if any one had ever tried it, but without getting any reply.

On my way home I was storm-stayed in Kirkwall for a few days, and there met a bright young fellow very much predisposed to the bee-fever, and I was not long in having him inoculated. The result you will find in the following letter I had from him this morning:—

'DEAR MRS. F.,—I would have written you sooner, but as I wished to be able to tell you how my swarm was going to like their new home. I thought it best to let them have a short lease of it first. I shall now give you the full particulars.

'For these last few weeks I have been visiting my bees daily, sometimes two or three times a day. In hot weather they were very busy, and carried a great quantity of pollen and honey inside. On the morning before they swarmed I was up and had the hive opened. Somehow or other they had found a small hole in the quilt, and had got over it, and had commenced to build drone comb to the top of the hive. I broke it away, and made up my mind to give them a crate of sugar.

'I was busy in the shop in the afternoon, fixing foundation comb in the supers, when my father entered the shop in great haste, saying there was a quantity of bees lying in a crowd on the grass. Of course I knew what was up. I left my super boxes, foundation, comb, &c., as it was, and ran up to Park Cottage with my new hive on my head. Fortunately I had filled the frames with foundation after ten o'clock the previous evening. When I got up I placed the hive about two feet from the swarm, and put a tablecloth between them. I put some sugar in the hive, and took a tablespoon and lifted a quantity to the entrance of the hive, when they ran in. It took them over two hours to get in. I looked earnestly for the queen, but her majesty could not be found. When most of them were in I opened the hive and saw that I had not fixed the foundation comb too securely on the two outer combs, because it had fallen to the floor of the hive. I took the frame out, and put in two division-boards instead, so the swarm is on eight frames. All this was done unprotected. I only got two stings, which I did not mind in the least.

'Yesterday being a fair sort of a day, I went and inspected the hives. The swarm has built comb on all the frames. The centre ones are nearly completed, but the outer ones are far from being finished. The first few days after they swarmed were cold, so I bought some barley-sugar and placed across the frames,

which they very soon consumed. They have a good quantity of honey stored now, so I am looking for good things shortly.

'Since the swarm the old hive has been very quiet until to-day, when they are excessively busy, the busiest I have ever seen them. I think I shall put a crate of supers on them both next week. I got one crate and supers with my new hive, and I made another crate myself yesterday. A friend of mine who used to keep bees in the south gave me twenty-one one-pound boxes, so I have two crates full of supers.

'I have every confidence in handling the bees now, having seen my hands covered with them, and never stung, although unprotected. I have got hold of Cheshire's *Bee-keeping*, and find it a most instructive book.—Yours, &c., JOHN M. SLATER, *Bridge Street, Kirkwall, June 21st*, 1890.'

I shall watch with much interest this experiment, and hope to see bee-keeping very general on these islands. A district that can raise some of the finest cattle and sheep in the country, and where clover and heather are abundant, can surely do something in bee-keeping in spite of its boisterous climate.—A LADY BEE-KEEPER, *Paisley*.

SELF-HIVING.

[266.] I feel as though I ought to add my experience of an attempt with a sort of self-hiver, seeing that so few successes or failures have been recorded. Mine is also self-made, perhaps not up to the mark, but the principle is there all the same. I procured a standard frame, and tacked flat on to it a piece of excluder zinc cut to size. I then placed an empty hive above the stock which was to swarm, and fixed the hiver on the front of hives to cover both entrances; bees working through excluder all right.

On the morning of Tuesday, at 9.30 a.m., the bees rushed forth, and I was in attendance and watched the process throughout. At their greatest rush they made a move upwards towards the empty hive, but when within about an inch of top entrance, they began to make their exodus through excluder. They settled in various small bunches, but in twenty minutes all returned to the hive, and in the general inrush they again almost gained the top entrance, and I thought it was going to succeed; but no, they presently all got in at the old entrance. Afterwards we had no more bee-weather for five days, when the very same process was again gone through, excepting that the bees all clustered on the post of a fence, half on one side and half on the other. I did not attempt to hive them. I saw the queen on both occasions try to get through the excluder, but not in a desperate manner (as though she would squeeze herself to death endeavouring to get through): finding it useless by fair seeking for a larger outlet, she returned into the hive. After the bees had returned the second time, I lifted out the frames, found the queen, and shook her, with about four pounds of bees, into empty hive, and removed stock, placing artificial swarm on the original stand. Both have since gone on right, with this exception: I have seen the young queen out flying so many times lately (July 4th) that I think she has not yet got fertilised, and it is now four weeks since the first attempt to swarm. What is your opinion? I examined the hive thoroughly on July 4th, and could not find any eggs, and very little brood.

I favour the position of one hive above the other for the self-hiver, and cannot think but what it will yet succeed. I thought, from my observations at the time, if my excluder had been covered with cardboard, all but two inches at the bottom for ordinary working, and had a piece of glass, instead of wood, at top, to throw light down the tunnel, the chances of its succeeding would have been greater, as those that could not make their exit at the bottom would have turned their attention to the light at the top.

I shall try it again first opportunity. What is your opinion? Don't you think it would be an improvement?—POSTMAN.

[It is a well-known fact that young queens will venture forth on days when drones prefer to stay at home through bad weather. Hence the delay in mating. Anything tending to lead the swarm into the upper hive will be an improvement—EDS.]

CURING FOUL BROOD.

[267.] I enclose to you a sample of foul brood, as you advised me in the *B.B.J.*, No. 416, p. 277. This sample is the worst that I have, as I am glad to say the other five stocks are nearly clear: but as I worked this stock for comb honey last season it did not get as much carbolic acid as the others, which may account for its being the worst at the present time. I have put in formic acid and will give you results later on, if you do not advise more severe measures after seeing this sample.—HAWTHORN, *Cumberland*.

APPLIANCE DEALERS.

[268.] I would have taken this matter up ere this, as I look upon it that the 'grumbles' against the misdoings of appliance dealers which have appeared from time to time are apt to 'tar all with the same brush.' But I feared it might be thought that I was myself among the offending ones, until my advertisement referring to the subject had cleared the way. Your correspondent (257) says: '"Cash with order" complied with, there is no particular ground for anxiety' on the part of the dealer. Surely no party can hold another's cash for goods not supplied without extra anxiety? To rid myself of this extra anxiety, customers have been asked to get goods and satisfaction first, and with what result? Just this—a large sum still unpaid on last year's work, and a still larger amount on this season's business, and of the two one knows not which anxiety to choose; but to a certainty the latter will not pay one's own debts. No. 257 seems to think that an appliance

manufacturer has all things to his will Well, he would command a great deal and be in readiness, too, could he have at will fine bee-weather with warm days of unbroken sunshine, and warm nights with nocturnal showers as needed; but these things are not so. One week twenty men are not sufficient to cope with orders, while at others two hands are too many, and as one cannot pick up men skilled in bee-work at any time, the precariousness of our bee-seasons must be taken into account, and no manufacturer should be expected to employ more labour than he can safely do on the mere chance of a good honey season, and a consequent heavy demand for his goods. Many customers work their own disappointment by not ordering beforehand. On this point the beginner must be excused, for usually he gets the 'bee-fever' when the season is on. Now the 'old hand' should make room for him by giving the manufacturer his orders from plans already matured at a season when he will be sure to get the best attention, say from January till March. These could be warehoused by the manufacturer till such time as a delivery order and remittance was forwarded, and he is a poor dealer who would not thus fall in with his customer's wishes. It should be the aim of the bee-keeper to have appliances always well in advance of his requirements, and thereby be able to give the bees a day or a week's work in advance of time, according as the season and state of the colony demanded. I am quite sure that manufacturers could in many instances prove that the biggest 'grumbles' arise from the inconsistency of some customers themselves, and could contrast the larger jar of 'soothing syrup' in the correspondence and gratitude from the greater number of their patrons. So long as persons will defer giving their bulk orders till May and June months, so long will grumbles continue, and it is well at times they should be made public, seeing that they form a stimulus to better practices on both sides.—JOHN H. HOWARD, *Holme, Peterborough.*

A WET JUNE.

[269.] The following extract from the *Times* may have some interest for bee-keepers, as showing how long a time it is since we have experienced so wet a month of June as that just passed.—W. E. B.

To the Editor of the 'Times.'

SIR,—As the welfare of the people of England is governed more, perhaps, than that of other countries by the character of the weather, it is interesting to note any special excess in any one of the many items included in the phrase 'weather.' The month of June just passed gives a record of seventeen days on which rain fell more or less, producing a total for the month of 2·85 inches. We do not find so high a record for June since the very wet year 1880, when the same month gave seventeen days and 3·85 inches.—Your obedient servant, W. SOWERBY, *Botanic Gardens, Regent's Park.*

'RINGING' OR 'TANGING' BEES WHEN SWARMING.

[270.] This custom has been alluded to and ridiculed in your pages lately, but in *this* part of the country it ought to be followed; not that I think for a moment it in any way affects the *bees*, but it is held to be a *legal claiming* of the swarm, entitling one to follow on to *any one's land* to hive it. A great antiquarian told me, years ago, that this is under an unrepealed statute of King Alfred; anyhow it is in force in Wiltshire, and so I always ring my swarms.—W. E. BURKITT, *Buttermere Rectory, Hungerford.*

LITTLE TOMMY ON BEE-KEEPING.

[271.] Bee-keeping is grate fun sumtimes. par has sum bockses with bees incide, which are alwaise doeing sumthin they orten to. I arsk par wy his bees doent maike hunny becorse jonny Smith gets quite sick sumtimes, and his par has only wun bocks. I wish mi name was jonny.

Par had a new pare of butes cum home last weke and jonny and me cort a few pore bees and put them incide to keep warm. par sed the kobbler was verry kareless to leve so menny nales stickin up, and he should call abowt it. As he went out of the gait i sore wun button fly orf, and when he was gone me and jonny picked up twenti more down the strete.

When par came home and sed he thort he had got the gout me and jonny kept out of the wai as much as possibul.—*Communicated by* HONEYSUCKLE, *June 27th.*

CHEAP EXTRACTOR.

[272.] This is a capital idea, but we advise *painting the woodwork*, also wood feeders, &c., as the honey or syrup cannot be washed off enough to prevent mildew after a time, which looks very nasty. I find nothing so good for the purpose as Aspinall's enamel.—W. E. BURKITT.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

We have received schedules of two shows to be held in connexion with above Association: one in conjunction with the Leicestershire Agricultural Society, the other in connexion with the annual Leicester Corporation Flower Show held in the public park. The latter promises to be one of the most successful honey fairs held, as it occurs on the occasion of the people's holiday, when thousands of the townfolk enjoy the numerous attractions provided, and buy a considerable amount of honey. We think that our County Associations would do well to take advantage of opportunities like these, when flower shows are held on Bank holidays, or on occasions of a like nature, when large gatherings of the public are sure to result. A honey fair held at such a time would always be a success, and would open up a large and increasing yearly sale of the product.

LECTURE ON BEE-KEEPING.

A lecture was given in the Village Hall, Childe Okeford, on Wednesday, the 18th ult., by Mr. J. W. Stevens, assisted by Mr. Spicer, of Iwerne, who showed an interested audience the mode of using modern bee appliances. The subject of the lecture was, 'Bee-keeping for Pleasure and Profit.' The lecturer dilated on the innocent pleasure and instructive pastime of keeping these industrious insects, showing too that the pleasure was not only a summer one, but could be extended into beguiling the tediousness of a long winter's evening in devising home-made hives and reading the experience of others in the cheap bee literature which was available, especially the *British Bee Journal*. The profit it was explained of course depended somewhat upon the season, and greatly on intelligent management. The old practice of suffocating the bees was condemned, and the more profitable and humane system of the bar-framed hives recommended. The import of honey in May last was stated to have amounted in value to over 7000*l*.—a fact which was commented on, it being pointed out that some of this wealth, now presented yearly to the foreigner, ought to go into the pockets of the Dorset cottagers, who lived in a county 'flowing with milk and honey.' In conclusion, the lecturer said that he did not wish his audience to understand that the road to wealth was through a beehive, yet he did assert that any cottager who had room to stand a few hives might with these increase his income some 10*l*. or 20*l*. a-year.—A pleasant and instructive evening was concluded by a vote of thanks to the lecturer. Nearly one hundred men were present, mostly of the working class, many of whom expressed their intention of trying apiculture under the modern system.

BEE SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

July 22.—Ripon Agricultural Show. W. Harland, Secretary, Ripon.

July 24-25.—Lincolnshire Agricultural Society, 25*l*. in prizes for honey, hives, &c. Entries closed July 8th. Stephen Upton, St. Benedict's Square, Lincoln.

July 25-26.—Wilmslow and Alderley Horticultural Society, 7*l*., and silver medal in prizes for honey. Open to Lancashire and Cheshire only. Hon. Sec., T. D. Schofield, Oakfield, Alderley Edge. Entries closed July 12th.

July 30-31.—Leicester B.K.A. Ninth Annual Show of hives, bees, honey, and appliances, in connexion with the Leicester Agricultural Society. For schedules apply to H. M. Riley, Sec., Tower House, Leicester. Entries close July 23.

August 5.—Leicester B.K.A. Honey Fair and Exhibition of bees, hives, and honey, in connexion with the Abbey Park Flower Show, Leicester.

August 8-9.—Bramhall and Woodford Horticultural Society. 8*l*. 10*s*. and silver medal in prizes for honey, open to Lancashire and Cheshire only. Entries close July 26th. Lists from W. Slater, Rose Cottage, Bramhall, near Stockport.

August 14.—Goole and District Bee-keepers' Association. Show of flowers, vegetables, and honey. Entries close August 5th. Particulars of A. Woodhead, Edinburgh Street, Goole.

September 3-4.—Lancashire and Cheshire B.K.A., in connexion with the Wirral Agricultural Society's Annual Show at Birkenhead. Nearly 30*l*. value offered in prizes. For schedules, &c., apply Sec. Wirral Agricultural Society, Birkenhead. Entries close August 15.

September 19.—Wigtownshire Apiarian Association. Eighth Annual Show at Stranraer. 12*l*. in prizes for honey. J. Balfour Robertson, Hon. Sec., the Manse of Leswalt. Entries close September 2.

Queries and Replies.

[144.] *Six Queens found accompanying One Swarm.*—On Wednesday, June 18th, a swarm issued from a bar-frame hive, on the top of which was a large glass super, which was being rapidly filled with honey. I searched for the queen, which I found and destroyed. I then examined the frames, and cut out all the queen-cells I could find, and afterwards returned the swarm. To my great disappointment a much larger swarm came out on July 2nd, exactly a fortnight from the date of first swarm. I again examined every frame, and cut out about a dozen more queen-cells, then placed a board in front of hive, over which I spread a cloth. Having found the queen in this swarm, I thought the bees would quickly re-enter the hive; but they were very unwilling to go, so I searched again, and found another queen, then another, and another, until I found six! After taking away the last, they immediately commenced to enter the hive, and in a few minutes all was quiet, and has been since. I sent for our local Secretary, and after having a little talk with him on the subject, we proceeded to the hive above-mentioned, and picked up some queen-cells, and two of them were capped. The first cell contained another queen, almost ready to come forth. I enclose this queen with the other six, and several of the queen-cells, for your inspection. I should be much obliged if you, or any of the readers of the *Bee Journal*, will kindly inform me—1. Why there should be so many queens the second time the swarm came out? 2. Why there should be so many queen-cells left in the hive after swarming the second time? 3. Was it right to cut out all the queen-cells, and kill the old queen, and then return the swarm? 4. Are any of the six queens fertilised? 5. Was it right to cut out all queen-cells the second time, and destroy the six queens? What surprised me most was the

making of so many queen-cells so quickly after the swarm issued the first time. The bar-frame hive contained two driven stocks of last autumn, and wintered on eight frames. — WALTER SLATTER, *Combe, Woodstock.*

REPLY.—1. The crowded state of the hive facilitated the egress of several young queens before a swarming day offered a chance for the first-hatched queen to lead off the swarm; consequently, when a favourable day did at last come round, six of her sisters were free and as able to head the swarm as the elder one. 2. Twenty or thirty queen-cells have been found in some hives after swarming, and your cutting out the queen-cells in the first instance caused the bees to raise new ones on a large scale. 3. No; that was where your mistake was. Had you left one or two of the best cells, the bees would not have raised others. *All* queen-cells are only cut out when the old queen is returned with the swarm. 4. No. 5. So long as you are quite sure the bees have a queen left, it was no harm to cut away the cells with still unhatched queens in them; but it might have been left to the queen to dispatch her rivals, without your troubling over it.

[145.] *Foul Brood.*—I send you a piece of comb from one of my hives where I suspect foul brood. The hive was strong in bees in the spring, and gradually dwindled down, till it is nearly useless. I have never seen the disease, nor is it within twenty miles that I know of, but it means very much to me if it is. Will you kindly say what I had best do if it is the dread disease? I killed the queen two days ago, and put in young one.—J. T.

REPLY.—Comb is so badly affected with foul brood that you should not trifle with it for an hour. As the stock is now 'nearly useless,' *burn the lot*, and in course of a week examine as many as convenient of the other stocks to see how they stand. It would be a fatal policy to try and cure a colony in such a condition as this one is. If you find traces of disease in others, write again.

[146.] *Moving Driven Bees.*—Will you kindly reply in your valuable *Journal*, if I drove a swarm of bees from a skep hive and took them about one mile and put them in a bar-frame hive, if they would be likely to return to the old place?—E. J. R., *Winchester.*

REPLY.—There will be little risk of the bees returning; driving is so great an upset to them that a change of location is more readily noticed.

[147.] *Bee-Paralysis.*—On looking over your issue of June 26th I noticed an article on 'Bee-Paralysis,' and while reading it at once recognised the symptoms stated as being identical with those exhibited by one of my hives within the last fortnight. I had never heard of the disease before, and was at a loss to know what was wrong with the bees. Besides the symptoms mentioned, I noticed the bees rubbing their wings with their legs, as they do when they are sticky in order to clean them. The affected bees looked quite young, and apparently mostly of the younger order. I sprinkled the bees with a cupful of a strong salt solution about four days ago, and again last night—as much salt as the water could absorb; but as yet can see no improvement. On each occasion I found a great number of dead bees strewn on the ground the following day. To-day I observe them dying by scores. I should be glad if you can suggest any treatment.—HENRY D. BLACKWOOD, *Kilmarnock, N.B.*

REPLY.—We have had no personal experience of the disease referred to, but should think that either the extra strength of your solution, or your manner of applying it, must be at fault, and since it has had the effect of killing the bees in great numbers we should not continue its use, unless you pay attention to the fact that Major Shallard used a much stronger application of salt than did Mr. Alley, who only sprinkled the bees with dry salt and afterwards 'soused them with water.' You have given a still stronger solution than the former, so may not this be just a little 'too much of a good thing?'

[148.] *Curing Foul Brood.*—Enclosed in tin box is a piece of comb taken from a friend's hive at Westerham, Kent, which I believe to be badly infected with foul brood: but as I have never seen it before, I should like to have your opinion. The hive is a standard frame one, containing ten frames, completely covered with brood in all stages, and bees working in twenty-one sections, from which I removed several nicely filled, and on drawing a frame of brood to give to queenless colony I detected a smell something like that of guano. I noticed many flies gathering near the entrance, and the owner says he has noticed the same thing himself for several nights past. Kindly help us through the *Journal*.—GEO. POINTER, *Limpsfield, Surrey.*

REPLY.—There is unmistakable foul brood in one or two of the cells in comb sent, but, seeing that bees are hatching out from the cells as it lies before us, and that nearly all the brood is healthy in appearance, it is a hopeful case for endeavouring to effect a cure. We should advise a trial of the formic acid remedy as described on p. 307 of *B.B.J.* for June 26th. The present strength of the colony, and other conditions, make it a favourable case for the use of Mr. Sproule's formula. The flies hovering about the hive entrances are of no account, and need not be noticed.

[149.] *Bees not Working.*—I commenced bee-keeping this spring, purchasing four skeps full of bees. Three were very strong, and have done well. One was weak, but, till I transferred it to a bar-frame hive, was doing well. Since then the bees have ceased to work, except for a little comb-building. Thinking there must be something wrong with the queen, I removed her, and successfully introduced one I bought from one of our best-known apiarists. I left the hive undisturbed for three weeks, and have just examined them. Scarcely any brood has been made, no honey stored, the bees scarcely

coming out, and appear at a complete standstill, doing nothing in fact. I have fed them with syrup, they are warmly covered up, and I am at a loss to know what to do. Four frames are well covered with bees.—PUZZLED, *Sevenoaks*.

REPLY.—No doubt the paucity of bees affects the progress of the stock. When the weather becomes warmer, the queen will probably do better. At present there are too few bees to generate sufficient heat for extensive brood-rearing, but the weather should assist them shortly.

[150.] *Examining Frame Hives.*—1. Seeing I am not to remove the straw skep till autumn from the bar-frames, I presume the latter may not be examined to see what progress the bees are making, or if all be well. If they should be, please say how it is to be done. 2. When I withdraw the bars for examination—from an adjoining hive—the combs are thickly covered, back and front, with bees: should these be brushed off to see the comb? 3. How frequently should each hive be examined?—NOVICE, *Castleblayney, Ireland*.

REPLY.—1. The frames of lower hive must be got at by lifting off the skep bodily, and setting it aside during the operation. 2. Hold the frame in both hands by the 'lugs' or ends of frames, and with a downward shake (not too rough) the bulk of the bees may be dislodged, and will fall into the hive. 3. As seldom as possible. The less bees ars disturbed—beyond such examinations as are really needed—the better.

[151.] *Bees Drowned in their Honey.*—I have a skep hive in which the bees were drowned in their honey last week. The combs are filled with young bees and larvæ. Will they do for using again with another swarm?—DAVID DICKEY, *Ballyclare, co. Antrim*.

REPLY.—We presume yours is a case of 'bad packing,' and that the bees have come to grief during a journey. The dead larvæ should be cut away, but any clean combs, or those containing honey only, may be used again.

[152.] *Bees building Queen-cells on Foundation.*—I have a stock of bees on thirteen frames. I put three frames of foundation in a week ago, and what was my astonishment to find three queen-cells on a frame of foundation that was not even drawn out. There are both brood and eggs in the hive, so I was puzzled what to make of it. I may say I space my frames a quarter of an inch apart. Do you think that would make any difference? It is a first-class stock, and I have taken six frames of brood from it, and built up two other colonies from them. We are having a miserable time of it here. I have had my sections on twice and have taken them off. I am having to feed all my four stocks. This time last year I obtained forty-five sections out of one hive; this year it is four hives and the result is *nil*. However, I am looking forward to the heather for my crop this year.—E. C. APPLEBY, *Leeds*.

REPLY.—It is evident the bees have made up their minds to prepare for swarming, and as the reduced distance at which your frames are spaced makes them unsuitable for building queen-cells, they have seized on the room afforded by the sheets of foundation offered them. But for the fact of your having seen eggs in the combs we should have feared you had inadvertently removed the queen when taking away combs of brood.

[153.] *Beginning Bee-keeping.*—1. This year, for the first time in my life, I possess a hive of bees. A good start in this, as in other matters, is half the battle. I begin to fear I have not started in the best way. I know nothing about the managing of these wonderful little creatures: this is why I wish to study your little book at once. Then, again, I bought a stock of a young fellow who has not, I fear, acted by me quite as he should. He had several stocks—fully half a dozen. He spared me a stock that is evidently weak. He said the queen was a young one. There is now good brood; sections have been put in, but whether the bees have taken to them he has not yet examined. There is no likelihood of a swarm.

The neighbourhood abounds in food for the bees. I want to produce abundance of honey for family use, and also some for giving away to poor families in case of sickness, &c.; that is my sole object in the business. 2. What hive do you deem to be decidedly the best for me? If you will please enlighten me on these and kindred points I shall be most grateful.—J. W.

REPLY.—1. As a rule, it is always best for a beginner to start with a good early swarm in a clean new hive, rather than with a purchased stock of bees. You then know exactly what you are buying, and that the future of the colony is in a measure guided by yourself. For the purchased stock to show 'no likelihood of a swarm' at this date augers ill for your prospects of honey this year, but you should raise the coverings of sections to see if bees are in possession. In a good neighbourhood they ought to be, but weather of late has been against honey-storing. 2. There are so many good hives in the market, it would be invidious to name any particular one. Consult our advertisement pages, and select a hive from some dealer's catalogue which has taken a prize at a good show. You will then be started on sound lines, and a very good hive may be had for about 10*s*. 6*d*.

Echoes from the Hives.

Turweston, and about Banbury, July 9th.—Having seen the discouraging reports *re* honey, I thought it would be an encouragement to others to send an 'Echo,' and let you know how we are doing round Banbury. I began taking off sections at Turweston (eleven miles from

Banbury) on May 21st, and have taken over fifty off the same hive. I took sections off at Somerton (ten miles from Banbury) on May 17th, and have had from one hive sixty-three sections. I have also taken sections at Edge Hill (nine miles from Banbury) on June 4th, and several other places around, so that we are not all quite so badly off as some of your correspondents. At present we are having a lull, through rain nearly every day. I find that wherever the sycamores are near enough, the bees have done well off them. I hope the weather will again clear up, as the clover is just in bloom, and I believe we shall do better still.—JOHN PERRY.

Honey Cott, Weston, Leamington, July 7th, 1890.—Fancy, here in the dog-days at six a.m. the thermometer stood at 48 degrees! The weather of late has been something awful. No honey of any account, but enough to have kept up breeding, and the hives examined jammed full of bees. The poor drones for several days past have been cast out of the hives and terrified to death, while those not come to maturity have been torn out of their cells and cast out. If we do not get a favourable change soon, it will be all up for the season. Happy those bee-men who had a good chance of plenty of fruit-blossom honey, the like of which we never get here.—JOHN WALTON.

Co. Antrim, July 8th.—For the first time I take it upon me to send you an 'Echo.' Unfortunately there is not much to say, except in the way of grumbling. We had an exceedingly mild winter, bees whose hives were unshaded, and had a southerly aspect, being frequently out, and so consuming a lot of food. I found those in shady places wintered *very* well, not being disturbed by sun-heat. Stocks were strong early, and stored in supers up to end of May, fruit-blossom and sycamore honey. First swarm reported on April 23rd. With June came a change. During that month and this we have had either cold weather or rain. White clover has been in bloom since June 8th, or thereabouts, yet stocks are almost without food. Drones were expelled in many places as early as June 20th, and drone pupæ soon followed. Surplus not removed was soon taken below, and as I write many stocks are almost starving, their owners being loth to feed at such a date and with supers on. The fault seems to lie entirely with the cold weather, for, in the midst of the finest forage, there appears to be little or no honey. We have had a lot of north wind, giving us many fine days, but cold, of course. If a change does not very soon take place 1890 will rank with 1888, I fear. Hopes are already being centred on the heather, which promises well should the weather take up. Apart from bee-keeping, the crops demand a word, this being considered so far one of the finest seasons on record.—PAT O'NEILL.

South Sussex, July 13th.—Our honey prospects here begin to look very bad indeed: supers that were partly filled at the end of May are now about emptied of the honey, but crowded with bees. In some cases they have found a road through into the hive-roof, and there they hang from day to day doing nothing through lack of sunshine; the drone-slaughter has been going on in downright earnest now for some days, so that the ground in front of the hives is covered with the slain, and at some hives even heaped on the ground—a sure sign of approaching starvation. The most we can hope for now is sufficient stores for wintering.—SOUTH SUSSEX.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication. All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

A. MACPHERSON (Grantown).—We fear the bees cannot have been well cared for to have nine stocks die last month. The piece of comb sent is full of brood 'chilled,' but not foul brood, and it suggests that you have not carefully attended to keeping the bees warm when breeding fast in cold weather, and that there has been some neglect in not taking the usual precautions against chilling brood.

T. G. (Staffs.)—The honey sent is fair in quality, gathered from various sources. It has no pronounced flavour by which it can be identified. We cannot fix a price on it, as the value varies in different seasons and localities. Sevenpence per pound for it in bulk would be a fair price in our opinion.

J. G. PEET (Nottingham).—There is a trace of Carniolan blood about the queen sent, but she has apparently been mated with a black drone, and her progeny are practically 'blacks.'

AMATEUR (Ayrshire).—Comb marked No. 1 contains foul brood; the other, dead bees and brood, not foul.

PERCY PERCIVAL (Shepton Mallet).—You will obtain full particulars as to examinations for expert certificates on application to Mr. Huckle, Sec. B.B.K.A., Kings Langley, Herts, and the same gentleman will forward you a leaflet on the advantages of joining bee associations if you ask for it.

J. W. G. KIRK (Eagle Vicarage, Newark).—Queen sent is a young one. By some mischance the old queen has got lost when the first swarm returned to the hive. The swarm which issued a week or so later might very possibly have more than one young queen with it. Sometimes several queens accompany the swarm under such conditions.

*** *We have received another communication on the subject of 'Royal Shows and the Committee of the B.B.K.A.' from Mr. W. P. Meadows, which will appear next week.*

THE

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Editorial, Notices, &c.

THE SITUATION.

The position of editor of the *British Bee Journal* in such a season as the one we are now 'suffering' is certainly 'not a happy one.' He is supposed to be ever watchful of the interests of several thousands of bee-keepers, who look to him, more or less, as their guide, philosopher, and friend, and in the due performance of his duty to readers he endeavours to present the pursuit to which his paper is devoted in an attractive light to those whom it is desirable to enlist, but who as yet are not 'of us;' while, so far as is consistent with truth, we hope, he offers to bee-keepers the brightest side of the bee-picture he honestly can.

True, he, perforce, now and then casts a shadow in the shape of a disquisition on the foul-brood question; but beyond what is really needful in the interest of the craft, the editor, if he be wise, avoids the gruesome subject, believing that the constant parading of this arch-enemy of the bee-keeper will tend to discourage the many, while its terrors may prevent the timid from making a start with bees at all.

With all these cares and responsibilities, we repeat that in such a season as this our lot is not a happy one. We cannot forget all we have said and written during the last few months; how we have held out hopes apparently never to be realised, and endeavoured each week to convince bee-keepers—ourselves among the rest—that a turn for the better was at hand. There is no bee-keeper among the whole community who each morning has gazed upward with more longing eyes, in the hope of welcoming the sight of the blue sky and bright sunshine, than has the occupant of the editorial 'chair.' And when, at long intervals, a real bee-morning has appeared, he has found himself at business betimes recording the renewal of hope; to find himself, more often than otherwise, returning homeward in what some one has called 'torrential' rain, sufficient to effectually wash away all the good things written earlier in the day.

And so it is: we are now in the third week of July, and the weather has for two days been all we could wish. Will it last? To have stocks and swarms dying of starvation in July is, happily, not a frequent item of bee experience, but it has happened this year, and realised to the full how 'hope deferred maketh the heart sick.' We shall say no more by way of expecting a turn in the tide. If it comes—good; if not, we must all thank providence it is no worse, and endeavour to 'keep our powder dry.' There is some consolation in the fact of so few bee-keepers in this country depending on their bees for more than the few extra pounds which may be added to their income by the sale of their produce. To the many a good or a bad honey harvest will neither make nor mar them, and the fact that so few will suffer more than a 'disappointment' is satisfactory so far as it goes. We shall defer some further remarks on the situation for a week or two, just to see if any good will be done in the last days of the season, and then we shall be in a position to judge as to what measures are necessary in order to make the best of it.

BRITISH BEE-KEEPERS' ASSOCIATION.

Meeting of the Committee held at 105 Jermyn Street on Tuesday, the 15th inst. Present: Hon. and Rev. H. Bligh (in the chair), Rev. Dr. Bartrum, Rev. R. Errington, Captain Campbell, W. Lees McClure, J. Garratt, Rev. F. T. Scott, H. Jonas, W. O. B. Glennie (Treasurer), and Mr. H. Morris and Rev. W. E. Burkitt, *ex officio*. The minutes of the last Committee meeting were read and confirmed. The Finance Committee presented their report recommending the payment of certain bills, together with the prizes awarded at the Plymouth Exhibition. Complaint was made of an exhibitor at the Rochester Exhibition having erased the price

at which the exhibit was entered, substituting one of a higher amount; resolved, that the prize awarded to this exhibit be withheld pending an explanation from the exhibitor.

Resolved, that the prize list for the bee department of the Royal Agricultural Show of 1891 be taken into consideration at the next meeting, and that a circular be issued to the several manufacturers of bee-keeping appliances inviting them to send a deputation to confer with the Committee in respect thereto. Several judges and examiners were nominated to act at county shows. Other business of a routine character was transacted, and the Committee adjourned until Tuesday, September 16th.

Quarterly Conversazione.

The summer quarterly *conversazione* was held at 6 p.m. on Tuesday, July 15th, at the offices of the Royal Society for the Prevention of Cruelty to Animals, when among the audience present were Captain Campbell, Mr. Glennie, the Rev. W. E. Burkitt, Mr. Garratt, Mr. Hooker, and Mr. Gibson-Carmichael.

Mr. Garratt, having been voted to the chair, opened the proceedings, remarking that as there was no special subject to be introduced for discussion that evening, he might as well follow up the matter which was prominently brought before them at the last *conversazione*. Many of those present would remember that he had spoken at some length respecting the condition of certain districts in the county of Kent where foul brood had prevailed to a large extent. Unfortunately then, as now, there were not many experts present. Since that meeting he had sought the opportunity of communicating with the *British Bee Journal*, detailing the steps he had taken in a case of foul brood occurring in his own apiary. Probably some of his hearers had read that description, and he would therefore merely say, by way of addition to it, that he had examined the hive carefully, comb by comb, and could not find any trace of the disease, which appeared to have been entirely eradicated. Most of the brood seemed to be well capped, and wherever there was any unsealed it was in perfect order and colour. He could not say if any circumstances of season or weather had conduced to such success, but he thought it desirable that the facts should be known for the benefit of bee-keepers generally. Most bee-keepers had a great aversion to getting rid of a stock of bees. The less the knowledge of the owner, the greater opposition he offered to radical measures. Many took a greater pride in speaking of a given number of stocks possessed, however ineffective they might be, than in the amount of good honey they produced. Such persons usually showed a great reluctance to admit that the disease existed in their hives, and a still greater reluctance to have it dealt with in a salutary manner. His experience showed that the removal of the old queen, and the re-queening of the hive, was the most important step in effecting a cure, and he would certainly adopt such means again if foul brood were to reappear amongst his bees.

In answer to Mr. Hooker, who suggested that besides re-queening the hive Mr. Garratt had also added thereto a number of new bees, which possibly had killed the old bees, the latter gentleman explained the method he had adopted, as detailed on p. 329 of *B. B. J.* for July 10th. He admitted that new bees had been introduced, but did not think the cure was in any way attributable to that. The hive in question was in a thoroughly diseased condition, as two gentlemen present could testify.

In reply to other inquirers, Mr. Garratt said he believed that the stronger the stock the more favourable were the chances of eradicating foul brood; the new queen he introduced was a fertile one and had been laying; he had not used formic acid, salicylic acid, or any preparation of that kind.

Mr. Hooker thought it was not a proper thing to unite a stock of bees with queen to another stock already possessing a queen; at least, it was a plan that few bee-keepers would recommend, because they would hesitate to risk the life of the queen. He believed it was not at all unlikely that Mr. Garratt would find the apparently cured stock visited with foul brood later on, after the honey season was over. His experience was that the disease could not be so readily cured as Mr. Garratt appeared to think. That view was also held by Mr. Glennie.

Mr. Garratt admitted that his experiment was an imperfect one, and suggested that other bee-keepers should test it by destroying old combs and re-queening.

Mr. Hooker advised that the bees should be purged before re-queening, and that a new queen should not be given to diseased bees.

A gentleman expressed his belief that infection was not carried in the honey. He knew a case of a badly infected skep in which there were three or four pounds of honey left after the combs had been cut out. All that honey was cleared out therefrom by the bees, and yet not a symptom of foul brood was found in the apiary afterwards, fifteen months having elapsed since then.

Mr. Garratt said that at the Rochester Show of the Bath and West of England Society, a bee-keeper exhibited a large hive which was used to hold two separate colonies. It was divided in the centre and supplied with queen-excluders, but the worker-bees could pass to and fro over the supers, which extended the whole length of the hive.

The Rev. W. E. Burkitt had made a hive on the same plan, but had not yet worked it.

Mr. Hooker said that at the close of 1888 he left on a super in which the combs were built out, and which contained some amount of honey not sufficiently well sealed to take. Besides this, he felt sure that if it were removed he would have to feed the bees, and being ten miles distant from them, there was some difficulty in doing so. He left the super on all through the winter, and in early spring it was

carried out; he took it off on June 14th, 1889, when it was filled, containing 75 lbs. of honey. In addition to that he obtained a considerable amount of extracted honey.

Mr. Glennie bore testimony to the success he had attained by leaving supers on throughout the winter.

Mr. Gibson-Carmichael (Melrose, N.B.) described at some length his bee-house after the German pattern, which was fitted with springs and travelled on wheels. It would accommodate as many as twenty-six hives, but he had sent away in it a day or two ago thirteen hives on a journey of ten miles to heather, a horse being harnessed thereto. The bees and their produce did not suffer in the slightest from the journey, which was over a fairly good road. The hives were lifted into the house after dark. They were arranged so that the combs ran in the same direction as the cart travelled.

Mr. Gibson-Carmichael next related his experiences in catching swarms by merely placing a frame hive on the ground or on a stand. He had succeeded four different times in taking swarms by that means, no trouble being taken beyond putting the hive in a position so that the bees could enter it of their own accord. His gardener had seen a swarm leave a skep and make its way into a hive so placed. He knew it was the custom for some people to set traps to catch their neighbours' bees.

Mr. Hooker knew of a gentleman living near himself who lost his bees last winter, had the hives cleaned out and put in their old position, soon after which he discovered that swarms had taken possession of two of them.

Mr. Gibson-Carmichael said it was a common thing for bee-keepers to take empty skeps with them when removing the bees to heather in case swarming should take place; and another gentleman spoke of the practice in Sussex of standing empty hives about as decoys; after which Mr. Gibson-Carmichael spoke in favourable terms of the principle of the Anglo-Cyprian diamond-shaped hive. He was convinced it was the best hive for Scotland and the production of heather honey. He knew of no hive in which the comb was so strong in the frame, nor in which manipulations could be so easily carried on. He had found that fact by experience in the heather district on a windy day, when the bees were, as a rule, very angry. Besides, the hives in question were safely and easily packed and carried from place to place.

A discussion then took place as to whether honey was gathered from red clover, the general opinion being that when the blossom was full of nectar, and especially when a second crop appeared, they would do so. Mr. Garratt had never seen the bees at work amongst red clover, but had noticed an unusual quantity of honey at the same time that a neighbouring red clover-field was full of bloom.

Mr. W. Broughton Carr, who only reached the meeting a short time before it closed, exhibited, on behalf of Mr. W. P. Meadows, a frame having a top bar which allows of a new method of fixing sheets of foundation rapidly and securely, and at the same time avoids the (to many) objectionable harbour for the larvæ of wax-moth afforded by the slit in upper side of ordinary top bars. The new bar has a deep groove which so nearly goes through the wood that one half of the bar may be forced back against a 'rest' in the frame block, thereby opening the groove to allow the sheet of foundation to be slipped in, and when the two remaining nails are driven in the side bars the foundation is held perfectly secure.

Mr. Carr also exhibited a specimen of comb foundation partly worked out by bees, which clearly demonstrated the mischief resulting from the use of inferior foundation. The cells, though originally built of worker size, were drawn into quite oval shape through the wax softening and stretching at a temperature which, apart from its tendency to break down, rendered it unfit for use in beehives.

Several samples of comb were then shown by Mr. Carr, which had been sent to him in his editorial capacity by bee-keepers under the impression that foul brood existed therein; but, though some of the specimens might alarm those not experienced, in only one of them was even a trace of the disease discovered. After a general conversation and the interchange of opinions on the various objects shown, the proceedings terminated.

THE OWNERSHIP OF SWARMS.

The following case, Anstiss *v.* Pym, heard at the Wycombe (Bucks) County Court on the 8th inst., before his Honour Judge Hall, Q.C., will throw some light on the law with regard to ownership of bees.

Mr. B. L. Reynolds, who appeared for the plaintiff, said the amount in dispute (11*s.*) was very small, but the facts were peculiar, concerning a swarm of bees. Plaintiff, on a certain Tuesday, hived a swarm of bees which he found hanging to a tree at Loudwater. He left them under the tree, according to the custom after hiving, to get the bees all in, and they were there all night. He saw them on Wednesday morning and they were all right. The defendant Pym had, it appeared, lost a swarm of bees on the Monday, and hearing that the plaintiff had hived one he concluded they were his, and went and took them away. The question for his Honour to decide was to whom the bees belonged. He suggested that the law as regarded bees was that as long as a man kept his bees in sight they were his, but if he lost sight of them, as he could not swear to them, he could not prove his ownership.

His Honour asked whether the law as to bees was distinguished from that which related to other *feræ naturæ*.

Mr. Reynolds—You cannot identify them, sir.

His Honour said there was a general law applying to birds.

Mr. Reynolds—You could identify birds better than bees.

His Honour—I do not mean tame birds, but pheasants, partridges, &c. They are yours as long as they are on your land, but not afterwards.

Plaintiff was called, but his Honour suggested that the facts probably were not in dispute. When, he asked defendant, did he lose his bees—on the Monday?

Defendant said he lost them on the Tuesday. The bees were not on plaintiff's land, but on land belonging to Mr. Roberts.

Mr. Reynolds said plaintiff got Mr. Roberts' leave to go there.

Defendant—Yes, after he had hived them, not before.

Plaintiff—He was in London when I first went.

Mr. Reynolds said that would not matter. Mr. Roberts did not claim the bees.

Plaintiff said the custom was that any one who saw bees first could claim them.

His Honour said that he did not know that the law as to *ferœ naturæ* could bear quite that interpretation. The law was that they belonged to the person whose land they were on; but he had no right to take A.'s pheasants or B.'s partridges because he saw them first.

Mr. Reynolds—With permission. Mr. Roberts gave permission.

His Honour—Taking possession would not give him any right—it may be that he had permission from the owner of the land.

Replying to the judge, plaintiff said he hived the bees on Tuesday, while Mr. Roberts was in London. He saw Mr. Roberts on Wednesday morning and told him what he had done. Mr. Roberts said he might go on his land if he did no damage—it was standing grass. Pym came and took them away about 6.30 the same evening.

His Honour said the evidence as to Mr. Roberts having given the bees to plaintiff was not very strong. Anstiss seemed to have gone to him after he had hived them, and he said he did not object—that was all it amounted to.

Mr. Reynolds said if the case were adjourned he would produce Mr. Roberts as a witness. The point was very interesting and important to bee-keepers.

His Honour asked the defendant how he identified these bees as his.

Defendant said he saw the swarm flying in that direction about 10 o'clock on the Tuesday morning. He followed as far as he could, but they went over the trees, and flew faster than he could go. He could not swear they were his bees, but when he took them home they were friendly with the others.

Mr. Reynolds said he could prove, if necessary, that a lot of bee-keepers round about had bees swarm on this particular day. The defendant came in a very high-handed way and took the plaintiff's hive with the bees.

Defendant said he was obliged to take the hive—he could not take the bees without. He returned it directly.

His Honour said defendant had no proof of the identity of the bees, and he did not think he had a right, after plaintiff had put them in his hive, to go and take them away with the hive. There was a possibility—very likely a probability—that they might have been defendant's bees; but on the other hand they might have been any one else's.

Defendant—They were not Anstiss's: he doesn't keep any.

His Honour—I think, having got them in his hive, you had no right to go and take them. His Honour inquired as to the value of a swarm of bees, which defendant said was 10*s.* including a hive and board.

Mr. Reynolds said he had bought some recently and had to give more than that. It was a pity he did not see the defendant previously.

The judge was referred by defendant to an old gentleman in court who was, he said, an experienced bee-keeper, and he placed the value of a swarm at 10*s.* including a hive.

His Honour said he had a strong suspicion that the bees were really the defendant's, but he had allowed his bees to stray and could not identify them. The plaintiff had hived these bees and acquired a kind of possessory right that would entitle him to recovery, but he would not make the amount more than the minimum value. He gave judgment for 7*s.* 6*d.*, with no costs except court fees.

ABOUT BEE-KEEPING.—IV.

By the Wife of a Bee-keeper.

My Dear M.,—It has taken longer than I intended to give even a brief sketch of the natural history of the bee and its products; and I have not yet quite done with this part of the subject. I will say nothing just now of the chief product—honey; but as it is absolutely necessary that the habits of the bee should be understood by those who intend to keep them, I shall have to refer to what are known as *second swarms* and *casts*.

After the departure of the first swarm the population consists almost wholly of very young bees, a number of drones, and the old bees which happened to be absent at the time the swarm issued. There is no queen, but the 'princesses' in the cells are rapidly maturing; besides, every day adds thousands of newly hatched workers to the number, so that when a young queen appears, in nine or ten days, the hive is again full of bees, and the first impulse of her future majesty is to destroy her rivals still in the cells if she can. The bees usually prevent this, and so it happens that two, three, or even more young queens are prepared to come forth from their cells at the same time. Any one who will listen with their ear close to the hive, on the evening of the eighth or ninth day after the top swarm has left, may distinctly hear the queens 'piping.' This is a curious sound they make at this time—something resembling

a child's trumpet—and consists of one rather long note, and then three or four shorter ones in succession. Then a pause, and a reply is heard in another tone, another pause, and so on. I have myself heard four distinctly different voices in a hive at one time, showing that three young queens were responding to the note of defiance of the one at liberty. This 'piping' goes on sometimes for several days; sometimes only for one; but the young queen becoming stronger each day, her hostility towards her younger sisters increases. These latter, however, protected from her wrath by the bees, and still safely ensconced within the strong walls of their cells, with only the capping or door of the cell severed, can answer the loud threatening note with their own shrill cry, thus adding to the excitement of the older one, till she can bear it no longer, and she leads off another exodus of the bees, smaller in number than the top swarm, but often of larger proportions than we could believe possible from the same hive.

After the hive has been again almost denuded of bees by this second emigration, there are few guardians left for the hatching queens; besides, their more powerful rival has now gone, so all come forth, and then follows a scene which I cannnot describe further than by saying it ends with the 'survival of the fittest,' as all the young queens, save one, are killed and thrown out of the hive next day. These combats among the queens are the only occasions when they use their stings. Sometimes before this slaughter takes place, a small third swarm, or *cast*, will issue on the day following the second swarm, but this is not very frequent.

Modern bee-keepers usually prevent swarming as much as possible; but I shall have to speak of how this is done later on, and proceed now to tell you how a swarm is captured.

First, all the requisites must be at hand: a straw skep; a flat board or light floor-board for the skep to stand upon; a few stones or pieces of wood to raise the skep from the floor-board while allowing the bees to run freely out and in; a stool, box, or anything to prevent the skep having to be laid on the ground: a step-ladder is also a useful addition, and a large cloth or sheet to shade the swarm from the bright glare of the sun. One most important article not yet mentioned is a bee-veil. It should be made of coarse black net, leno, grenadine, or anything that can be easily seen through. The one I use is of coarse black grenadine, and is simply a large bag with a circular piece at the bottom, and a wide hem in which a tape runs. It is large enough to go on over a straw hat with a brim wide enough to keep the veil quite clear of the face and neck, and when it is on and carefully tied, so that no bees can get underneath, they may do their worst and no harm happen. I remember one occasion when a whole swarm, which my daughter had just shaken from the branch of a tree, was capsized over me, and though my head and shoulders were thickly covered by tens of thousands of bees, neither of us received a single sting: had we been without veils, it is more than likely that I, at least, would have suffered severely.

Beginners should always wear bee-veils when doing anything about bees; they are easily put on, and I am sure the confidence engendered by a feeling of safety will do much to prevent accidents. Bees are not usually inclined to sting when swarming, and, as a rule, it is better not to wear gloves, they being awkward to work with; but I think beginners, or any persons who are nervous, should have their hands protected, and a good plan is to cover the backs of a pair of thick-lined woollen gloves with silk (say from an old umbrella). The thick wool prevents the sting from reaching the skin and allows the bee to withdraw it, while the silk does not irritate them as rough wool does, and so prevents stinging. Women should also wear sleevelets of some kind, to prevent the bees running up the sleeve of their dress, as they sometimes will do, not with any evil intent, but for shelter. It is generally a young bee that chooses such a refuge, and if unmolested would do no harm; but a bee in such a position is apt to be crushed when the arm is moved, and then the sting is used in self-defence. Poor little lost bee! it pays with its life for what it has done; for the sting, being barbed, is left in the wound, often with the poison-bag attached, and the stingless bee, with its torn body, unable to do any more mischief, does not survive very long.

All things necessary being ready, and the bees having clustered in a convenient spot, the hiving is an easy matter. The skep must be held bottom upwards, under the swarm, allowing as much of the cluster to hang inside as possible; then the branch upon which it has settled must be grasped with one hand, and by a sharp jerk the whole cluster will fall into the skep. The floor-board is then placed on the skep, to keep the bees in, the whole turned the right way up, and placed on the stool or box as near the clustering-place as possible. The skep is then raised at one side by inserting stones under its lower edge, and the sheet so fixed that all will be shaded from the sun. At first many of the bees will rush out of the skep, flying about and running all over it, but if the queen has been shaken from the tree with the rest, they will soon all go back again, and in about five or ten minutes all will be quiet: they may then be removed to the spot they are to occupy. This is hiving as it should be, and generally is; but circumstances alter cases, and hiving swarms needs the exercise of common-sense and judgment, as do most events in life.

I have had much to learn from a long experience, and a few instances of the 'variableness' of bees when swarming may not be out of place; but first let me say a word about hiving swarms from a woman's point of view. Men seldom require assistance when hiving swarms; women, unless they are very strong and have long arms, *should* have help. I think that to hold the skep firmly, and shake the bees into it properly, requires *two*. A girl or boy and a

woman may manage very well; but the skep *must* be held firmly, and if the bees are only shaken with a weak hand, the result will be that part only of the swarm will be dislodged, the queen being left with the remainder. This treatment irritates the bees and makes them inclined to sting, while the swarm is no nearer being captured than before, for they will all rejoin the cluster, and the work has to be done over again.—*Co-operative News.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts* (*see 1st page of Advertisements.*)

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

EXHIBITING AT THE PLYMOUTH SHOW.

[273.] We have seen with regret a letter from Mr. Blow (No. 248, p. 327) dealing with matters which, though they have been subjects of every-day conversation and discussion amongst dealers in bee-gear, we never thought of adopting as a *casus belli* against the Committee of the B.B.K.A.

At our joint interview with Mr. Blow, which was of a strictly private nature, no allusion was made to the 'tyranny of the Committee,' and therefore it could not have been a reason assigned for a revolt against the Committee, or for our abstaining from exhibiting at the Plymouth Royal Show. Mr. Blow's letter was written without our knowledge, and it is singular that the well-known 'grievance' (in respect of schedules?) to which he alludes is conspicuously absent from the schedule relating to the Plymouth Show.

With Mr. Blow, we deprecate controversy on this vexed question, and very unwillingly, and simply in our own defence, offer this explanation, at the same time taking leave to say that we do not share Mr. Blow's personal grievance in respect of the formation of the Committee of the Association.—Abbott Bros., Geo. Neighbour & Sons, *July 21st*, 1890.

PLYMOUTH SHOW.

[274.] As an exhibitor at the above show I must raise a strong protest against Mr. Blow's letter. For the life of me I cannot see where the tyranny of the Committee of the B.B.K.A. comes in. I am proud to have proposed at the 1889 annual meeting that manufacturers be excluded from serving on the Committee, although, through alterations in rules then made, had they been allowed a place on the Committee, I myself, as representative of my county, should have been an *ex-officio* member. We want fair dealing, no combinations or 'trades unions,' and the advocating of self-interests. Now, had dealers been on this Committee there would have been a considerable amount of feeling amongst the others that personal interest was being served. No, Mr. Editor, this is not the thorn in the side: but when our pioneers had had things all their own way, it was probably not pleasant to have comparative beginners beating them. There is no getting away from this fact, and if there are grievances this is a main one.

Another cause of complaint is the cutting prices caused by keen competition, hives, extractors, smokers being now sold at about half the prices formerly charged. But this is partly their own fault. If exobitant prices rule, plenty, knowing that there must be an inordinately large profit, are in arms against it, and so others enter the field, and no wonder. I candidly admit this led *me* into the business. There never was a fairer step taken—although so strongly protested against by those having the capital to buy up every novelty, both English and Continental, in order to make up a larger collection—than the limiting collections to a certain number of specific articles. This was another grievance, but it is none the less fair play, and gives merit to the most deserving. I consider no fairer form for the collection class can be framed than has been done at our last 'Royal' show, only I would limit the list after the necessary hives, &c., and allow say ten or twenty (whichever is thought best) other articles, at the discretion of the exhibitor. If I may offer a word of advice to the Committee I would say, let right prevail, and stick to a fair course that will give all an equal chance; some may not like it, but it will prevail, is justice, and that is what the right-thinking manufacturer should ask for.—W. P. Meadows, *Syston, July 12th*, 1890.

THE DEVOTION OF BEES TO THE QUEEN.

[275.] Having occasion to visit the neighbourhood of a friend who kept a small apiary, I thought I would have a look at his bees and compare notes. On making the usual inquiry, 'How are the bees?' I was informed that one of the stocks had gone wrong somehow—that the bees had deserted the hive and taken up their abode on the flag under it. I thought that it was a case of wanting a sunnier hour to swarm, but was assured it was not so, for not only was the hive empty but most of the bees were dead.

On proceeding to the hive I found it was only too true. Under the floor-board were a few bees clustered on shallow combs, which completely filled the hollow space between the floor-board

and its deep side-pieces, while on the flag on which it rested lay a mass of dead bees, some quite black and some only just dead. It was a sad sight, but the cause suddenly flashed on me. In removing the stock in that hive out of their winter quarters, the queen must have dropped on the ground or flag, and for some reason was unable to regain the shelter of the hive, seeing which the poor bees gave up their warm home to loyally die on the cold flag with her. This was proved beyond doubt by the shallow combs, which contained sealed brood only, showing that the queen was among the dead. To burn all the dead bees and brood-combs, unite the few living bees with their next-door neighbours, and remove hive, was all that could be done.

Huber gives us a somewhat similar account of the devotion of the bee for the queen-mother, but this is the first evidence I have had of it, and I hope it may be the last.—T. B. O'Bryen, *Boston, Oranmore.*

PREVENTION BETTER THAN CURE.

[276.] That the dreaded foul brood is spreading at an alarming rate through our land, and threatening to give a severe check to the bee industry, is a fact beyond the contradiction of any intelligent bee-keeper, and seeing that it is so difficult to cure, the old proverb ought, in every case, be acted upon—prevention better than cure. Perhaps the best preventive is not to purchase either swarms, stocks, or queens, without a positive guarantee that the same are free from disease. Doubtless we have to thank Ligurian queens and the importers of them for a great deal of this pest that is stalking through our land, leaving many a bee-enthusiast slain upon the field, shall I say, of despair or disgust? I see by a letter in your columns that two or three Lincolnshire bee-keepers have had bee-dealings with an affected district. Such would do well to keep a watchful eye on their purchased bees: would it be asking too much of them to let us know if they still keep clear of foul brood? Another preventive might be, I think, to make a public statement when foul brood is known to have taken hold upon any apiary, as, if the owner thereof honestly declines to sell, a near neighbour may have his bees affected without knowing it, and so unwittingly enough sell diseased bees without the intention of doing anything wrong—and so the plague spreads.

I have had no personal experience with foul brood, but through the *B. B. J.* and the *Record* I have learnt enough to make me blow the trumpet of warning. To Lincolnshire bee-keepers, I say especially—'Beware! beware! Prevention's better than cure!' or what we may fancy to be a cure. Again I say, purchase no foreign queens or bees unless absolutely necessary. My personal opinion is that, whilst other shires are plagued with this pest, never to my knowledge have I seen or heard of one case in Lincolnshire, and the main reason of our exemption is that we have read unmoved the reputed wonders of the 'foreigners,' and been contented with the wonders our native bee has wrought. (By-the-by, in face of such a season as this, Mr. Useful Hints will scarcely have the courage to arrange the proposed contest between natives and foreigners.) Speaking of foul brood as it effects Lincolnshire, I remember reading some years ago (perhaps eight) in *B. B. J.* that an expert of the Association visited most of the leading apiaries, and examined some hundreds of hives, and did not find a single case of foul brood. Of course, it is more prevalent in England now than it was then, and though unknown to me it may exist in some parts of Lincolnshire now. I had thought to have said something about the season and how bees and bee-keepers stand it, for hope has nearly fled; it rains now, and we are only getting about one bee-day in seven: but I dare not trespass on your space further.—J. W. Blankley, *Denton, Lincolnshire.*

APPLIANCE DEALERS.

[277.] I should like to add a protest to your 'notes' on my letter (240) *re* 'Appliance Dealers.' A tradesman certainly has a right to specify 'cash with order,' but he, on his side, is bound to supply that order at once, and not keep the money for two, three, or maybe six weeks, the customer in the meantime being out of pocket, having neither money nor goods. It is *not* business; no other cash tradesman would ever so treat a customer. The very essence and vitality of the 'cash' system is promptness—a promptness which ought to be respected by the dealer.

In the *B.B.J.* of July 10th Mr. Blow uses some words relating to showing, but which will help to illustrate my complaint. He writes thus: 'All our profits have to be made in three months, and we may be idle during the remaining time, though' (and please mark this) 'our staff of men has to be kept going.' Such being the case, I ask, why are not the dealers better prepared for the rush of the season, knowing it must come? Things such as I have ordered, and delays, have been over, viz., comb foundation, frames, sections, and section racks, &c., are always in request, and by no means 'out of the general run,' as your 'notes' suggest as an excuse. They ought to be well in stock in every dealer's warehouse, and able to be sent off the day the order is received. Living in the country, as I do, I write to every description of tradesman, but never have the annoyance complained of from any of them excepting the bee-appliance dealers. Their want of courtesy when such delays occur is annoying, for they never think it necessary to write and state cause, or when the goods may be expected. May they read and learn.—Bee-Kay.

[We have no desire to extenuate anything which may be justly charged against dealers, but our foot-note was written after seeing a few specimens of correspondence received by appliance dealers, and, judging from what we saw, it does certainly appear as if there was something to be said on the *other* side.—Eds.]

MAKING THE SELF-HIVER WORK.

[278.] I have tried the self-hiver, and though I cannot report it a complete success, with a little help from myself it did its work, in this way:—The bees swarmed out and returned to the old hive; while this was going on I saw the queen in the hiver, but not being able to get through she returned to the hive along with the bees. Next day they swarmed again, and as I again saw the queen I moved the old hive back a little, stopped up that end of the hiver, and left them to hive themselves in the new hive, which they did, and are now all right. For places surrounded with high trees these 'hivers' are an improvement, as they save time and trouble in getting the swarm by means of ladders, &c.—Wm. W.

[Our correspondent has just caught the idea we expressed on p. 341 of last week's issue, and it has worked successfully as was expected.—Eds.]

APPLIANCE DEALERS AND SHOWS.

[279.] Though an appliance dealer I do not exhibit at shows, and so I am not personally interested in the matter to which Messrs. Blow and Howard refer, but fully endorse the greater part of Mr. H.'s letter. For myself I would say: (1) I do not think it wise to put an appliance dealer on the Committee. (2) I consider the B. B. K. A. Committee have injured the shows by fixing price of hives, &c., and they have done a still greater injury to the honest manufacturers, as may be seen by the many failures, &c. The death-blow was given at Norwich and South Kensington. Manufacturers exhibited hives, &c., at those shows that were not made for the money put upon them as the selling price, and have not been supplied at the price since. Other makers tried to compete at the price, and have found their way into the Bankruptcy Court. Gentlemen may say they can make their own at the price, but they know little about the heavy incidental expenses attending the manufacturer.—L. Wren, *Lowestoft*.

COUNTY ASSOCIATIONS AND FOUL BROOD.

[280.] It has occurred to me that the foulbrood question might be dealt with in the same manner as county authorities deal with cattle disease, but without the complications consequent on the removal of diseased cattle, as no one would wish to remove diseased stocks of bees. To put it briefly: take the British Bee-keepers' Association as the central authority, acting in concert with the local or county associations, the latter to advise the Association when any disease breaks out in the district, when a list of infected districts could be published in the *B.B.J.*, either weekly or at such periods as might be considered necessary. This would extend the usefulness of the *Journal*, as then those who wished to purchase bees would find it to their advantage to know what districts were free from disease; and if a scheme of compensation for destruction of stocks which were beyond cure was also instituted in connexion with the Association, I have no doubt but that it would lead to a large increase in membership; and further, it would make the County Association more active in order to ascertain if the district were healthy.

I am aware that it will take a good deal of consideration to launch a matter of this kind, but I am convinced that it would answer the purpose. If you think favourably of the idea, I might endeavour to draft a code of regulations, which you could publish in order to elicit the opinion of bee-keepers in general.—Jas. W. Pattinson, *Haltwhistle*.

[We shall be glad to have our correspondent's views as well as those of bee-keepers generally on the above subject.—Eds.]

BEE SHOWS TO COME.

Bees, Hives, Honey, etc.

July 24–25.—Lincolnshire Agricultural Society, 25*l.* in prizes for honey, hives, &c. Entries closed July 8th. Stephen Upton, St. Benedict's Square, Lincoln.

July 25–26.—Wilmslow and Alderley Horticultural Society, 7*l.*, and silver medal in prizes for honey. Open to Lancashire and Cheshire only. Hon. Sec., T. D. Schofield, Oakfield, Alderley Edge. Entries closed July 12th.

July 30–31.—Leicester B.K.A. Ninth Annual Show of hives, bees, honey, and appliances, in connexion with the Leicester Agricultural Society. For schedules apply to H. M. Riley, Sec., Tower House, Leicester. Entries close July 23.

August 5.—Leicester B.K.A. Honey Fair and Exhibition of bees, hives, and honey, in connexion with the Abbey Park Flower Show, Leicester.

August 8–9.—Bramhall and Woodford Horticultural Society. 8*l.* 10*s.* and silver medal in prizes for honey, open to Lancashire and Cheshire only. Entries close July 26th. Lists from W. Slater, Rose Cottage, Bramhall, near Stockport.

August 14.—Goole and District Bee-keepers' Association. Show of flowers, vegetables, and honey. Entries close August 5th. Particulars of A. Woodhead, Edinburgh Street, Goole.

September 3–4.—Lancashire and Cheshire B.K.A., in connexion with the Wirral Agricultural Society's Annual Show at Birkenhead. Nearly 30*l.* value offered in prizes. For schedules, &c., apply Sec. Wirral Agricultural Society, Birkenhead. Entries close August 15.

September 3–4–5.—West Cumberland B.K.A. first annual show of bees, hives, honey, window plants, &c., at Harrington. Forty classes and over a hundred prizes. For lists apply E. McNally, Sec., Harrington.

September 19.—Wigtownshire Apiarian Association. Eighth Annual Show at Stranraer. 12*l.* in prizes for honey. J. Balfour Robertson, Hon. Sec., the Manse of Leswalt. Entries close September 2.

THE OUTLOOK IN THE NORTH.

SIR,—I sincerely hope that other districts have more cheerful prospects this season than we have here. We started in splendid condition and all in first-rate order at the beginning of May, especially my own, having wintered especially well on not less than ten frames each: but some of my friends who left only seven or eight frames with them came to grief about the middle of June, one as early as the 6th of June. I fed two of mine for a week from 10th of June, having found them rather short then. On the 12th inst. I looked through some of my hives, and found them without a particle of stores, and one with chilled brood in it, as the number of bees could not cover the frames. I at once commenced feeding the whole of my hives. Rather a dismal look-out on the 15th of July, when under ordinary circumstances we would be having no end of surplus honey coming in.

I am sorry to say that some of my friends lost a number of their bees before they thought of the cause, it being so unusual at this season of the year. Should the weather improve now they can scarcely do more than take in their winter's supply—a thing that I will be very thankful for if they accomplish it. However, I trust before the end of the month that things will look brighter.—Yours, &c., A. MACDONALD, *Edderton Station, Highland Railway, N.B., July 15th.*

WHERE TO KEEP HONEY.—Honey should be kept in the dark, and in a temperature not lower than 70°, this being its condition in the hive. If it is exposed to cold and light it will granulate, or candy. Many seeing it in this state and not knowing the cause think they discover sugar in it; on the contrary, granulation is an evidence of purity. If it is warmed—*not heated*—it soon liquefies again.—*Honey Almanac.*

Queries and Replies.

[154.] *Dividing Stocks.*—I have three stocks of bees in two-tier hives, each containing twenty frames, all very strong. I have extracted early from the upper frames with a very fair yield. The upper boxes are now full of sealed brood (worker and drone) and honey. I have not touched the lower frames for extraction. I want to increase my stocks. As I have no queens to give the artificial swarms, will you kindly say if division is advisable so late as this, in the absence of a supply of laying queens.—G. J. G., *Bexley Heath, July 19th.*

REPLY.—The probability is there will be no honey at all in lower chamber. We should not advise dividing the stocks for increase if you have no fertile queens available. In such a season as this, when drones are being killed off by wholesale, the chances are against young late-hatched queens ever being mated.

[155.] *Ants in Hives.*—What is the best way to effectually destroy ants? I have destroyed hundreds of eggs and ants, and put turpentine all along the ends of the frames. They then went to the other side of hive, and I served them the same. Then I tried paraffin oil, and they left the ends and made a nest of eggs on top of quilt. These I smashed, but this morning I found some more ants carrying eggs about. I have killed all the nests I can find on my side of the fence dividing my garden, but there are a good many nests next door, where my neighbours also keep bees, but the ants don't go into their hives. I may say that I have turpentined and paraffined the legs of the hive as well as putting a chalk-line round them; but there the ants are, and seem as if they meant to stop, unless I can hear of a remedy. Will they injure the honey? My bees are fairly strong, and there are some sections capped over about this district, but not many.—A WORKING MAN.

REPLY.—Ants are sometimes very difficult to get rid of, but if stocks are strong the bees keep them to the *outside*. Try a piece of rag rolled several times round each leg, and kept moist with turpentine.

[156.] *June Swarm Dying for Want.*—Will you please answer this through the *Journal*? A second swarm of bees issued from a straw skep on June 2nd, and all proceeded well until the 19th of July, when the bees were discovered dead and dying on the floor-board. The queen was found alive and given to a bar-frame bee-keeper, who made a small swarm of two frames, and introduced the queen through a perforated zinc cage stopped at one end with a plug of honey. The bees ate this in less than one hour and took to the queen, and they are doing well: the whole thing was done in less than three hours, and the entrance opened for the bees to fly, which a small number did at first. A piece of comb and some of the bees are sent herewith for your inspection, and I shall be very pleased if you can tell me the cause of the bees dying at this time of the year.—H. PALMER, *Eardwich, July 16th.*

REPLY.—We fear you have not read your *Bee Journal* carefully of late, or you would not have failed to notice the warning words against impending starvation to unfed swarms of this year. Your swarm has simply perished from want of food with plenty of brood in the combs, while an outlay of sixpence would have saved it.

[157.] *An Association wanted for Durham.*—On Monday last I had a very strong swarm from one of my hives, and I hived them all safe and the bees are now doing well. They sent forth a cast, and at sunset I was returning them to their original home, when I came in contact with two queens: one was nearly dead, the other quite strong. How is it that two queens should thus come out with one cast? Can you inform me if there is a B. K. Association in the county of Durham? I came in contact with

several cottagers during the last fortnight who would, like myself, be happy to help in the formation of an association, as there are plenty of readers of your valuable *Journal* about the North. I am of opinion that by your kindly mentioning the matter in the *B. B. J.*, some abler pen than mine might be induced to take the matter up. We are having very cold weather. No surplus honey, but I have had good results in swarms; plenty of bees.—T. Pallister, *Coxhoe, Durham, July 14th.*

Reply.—In such a season as this it is quite a common occurrence for more than one young queen to accompany a second swarm or cast. There is at present no association for the county of Durham. It should not be difficult to start one if a few active leading spirits could be found to take the initiative. The present bad season would not, however, present a favourable opportunity for doing more than finding out how many bee-keepers would be willing to join if an effort were made next year.

[158.] 'What shall we do with our drones?' is the cry of all one's bee-keeping friends. I have stocks that have sent out both a swarm and cast each, and are still over-crowded with bees, but I fear mostly drones. On fine days I find the bees clustering beneath the entrance and crawling all over the hives: this is on account of the wretched drones, is it not? Anyway, the work seems almost entirely stopped by the disturbance. 1. What am I to do as regards exterminating the drones? 2. Will the stocks be left very weak for the winter, there being at present no room for many workers? 3. How soon will the drones be turned out by the bees? 4. What chance is there left for any *profit* from my bees? 5. What is your opinion on the following?—The weather being so bad, and the hay being carried full soon, the yet unfinished rick is very hot and steamy. On mounting the said rick to-day I find, on and round the top, dozens of bees settling, as if gathering something from the steamy hay. Are they attracted by the heat, or are they gathering propolis, or what?—A Disgusted Bee-keeper, *Epsom.*

Reply.—By simply limiting the amount of drone comb in a hive, the bee-keeper may easily avoid having a superabundance of drones therein; but it should be borne in mind that the drones always cling to the parent hive, and never take up their quarters with the swarms which leave it. Replying to your other queries *seriatim*—1. Leave them to the bees. The drones, if left alive, will serve the good purpose of helping to hatch brood until they are killed off by the bees. 2. Not necessarily so. 3. They are already turning them out according to your description of the disturbance. 4. We fear that the chances are not very bright for any of us bee-keepers realising much profit this season. 5. The bees are certainly not collecting propolis from the hayrick, and it is quite beyond us to say what they *are* gathering.

[159.] *Impervious Quilts and Excluder Zinc.*—As to using impervious quilts:—1. Are there other kinds than American enamelled cloth? If so, which do you consider best? 2. In winter do you leave entrances open at full width when impervious quilts are used? 3. Do the bees propolise them? I storified a stock with a box of standard frames with worker comb, and a box of 5½ frames with drone comb, without using excluder zinc between; the queen has penetrated into the top boxes, and there is a large amount of brood in the standard one, and also a little drone brood in the shallow box. 4. What would you advise me to do? I have thought of catching the queen and returning her in the bottom box, and then putting excluder between, but what about the poor drones?—H. Wallis.

Reply.—1. Any ordinary oilcloth table-covering will answer the purpose well. 2. No; our own practice is to give a space of three inches below the combs in winter, by means of an 'eke' set under the body-box, and when this is done entrances need not be left full width, otherwise a wide entrance is necessary. 3. Not much. 4. Leave the brood to hatch out without disturbing upper chamber as you suggest, and use excluder zinc in future. You will find the latter precaution insisted on in these pages when working for extracted honey, as we consider it cannot be dispensed with without consequences such as you deplore.

[160.] *Chilled Brood.*—Would you oblige by telling me if enclosed comb is infected with foul brood? I have cut it from a comb which about a fortnight ago I put with some frames of foundation on top of stock in a doubling-box, as the weather has been so bad. They have not worked them out, and only a few bees have found their way through, so I am afraid the brood has died, and I hope it is no worse. I enclose a stamped envelope if you can give me a reply by post, as I should like to take steps at once if it is foul brood. I have never seen a case, so do not know myself. Your advice as to procedure will be esteemed by—Inquirer.

Reply.—The brood in comb sent is 'chilled,' not 'foul.' Your mistake has been in 'doubling' when the colony was not sufficiently strong to spare bees to cover the brood in upper chamber, and so it was left to die.

[161.] *Introducing Queens.*—In my No. 1 hive (a ten-frame Abbott's cottage with one super rack on) there is an old queen which I wish to supersede, and I have a queen at hand in a three-frame nucleus in one end of No. 2, a long hive with two entrances. In the other end, on six frames, is a late cast, a present from a friend on the 14th inst. I intend uniting these after re-queening No. 1. The nucleus was made up on June 21st in dealing with my only swarm from three colonies. 1. When should the introduction be made? 2. May it be done by pipe-cover cage as soon as the old queen is deposed, or should there be a few days' delay? Will another month do as well, when the crate, probably *minus* honey, will have been removed? The white and Alsike clovers are very fine this

season, but 'the rain it raineth every day,' St. Swithin's excepted.—J. F. T., *Devon.*

REPLY.—1. It might be well not to disturb the hive for a week or two in the hope of getting the sections now on filled, but apart from this any time will do between now and September. 2. Introduce the new queen same day as old one is removed, and keep her caged for two days before releasing her.

A NEW DEPARTURE IN BEE AND HONEY SHOWS.

The West Cumberland B. K. Association, which was only instituted last month, has just announced its first show of hives, bees, honey, flowers, &c., at Harrington, on September 3rd, 4th, and 5th next.

The schedule of prizes now before us is quite a novelty in its way, being long enough and varied enough to suit every taste. There are forty classes, in which over a hundred prizes are offered for bees, hives, honey, beeswax, &c., to which are added prizes for window-grown plants in pots, bee-flowers, wild flowers, honey cakes, honey wine, drawings of bees and hives, and we note one class for 'the most humorous description of a bee' (wisely limited to 200 words). Some classes are for ladies only, others for boys and girls under fourteen years, and there is even more variety in the prizes than in the objects competing for them. No money prizes are given, but useful and ornamental articles of all sorts and kinds, from silver medals and oil paintings to bird-cages and ladies' purses.

With an influential body of officers, including a ladies' committee, and an executive committee of twenty-two members, it is evidently intended that the first exhibition of the W. C. B. K. A. shall not fail through the apathy of its promoters, and we wish it every success. Prize lists may be had from Mr. E. M'Nally, Harrington, secretary.

Echoes from the Hives.

Garstang, Lancashire, July 15th.—Season about here has been a complete failure, and as far as my inquiries go there will not be any surplus honey at all. Last season I took 240 pounds of honey from three hives, and this season all I have got is three sections; but we have the heather to come on yet and shall remove there latter end of this month. It is about four miles off. Worse season so far than '88.—R. B.

Ringwould, near Dover, July 12th.—Having taken the *B. B. J.* for eighteen months, and having never seen an echo from this part of Kent, I thought I would send one. I wintered ten stocks, all in bar-frame hives, and they all came through the winter right but one, and that lost its queen. I have only had four swarms. One of them weighed seven pounds four ounces. The weather has been very unsettled this spring; we had a few nice days in June, but the wind was keen, and it is very wet just now. I had some nice crates of honey the beginning of June, having some nice sainfoin and red clover close to the bees, or they would not have done so well. The second cuts are just coming on now, so I am in hopes of getting more yet. There are not many bees just about here. There is very little fruit grown, and we are only about one and a half miles from the sea, so they have to go to the fields chiefly for honey. I must say I have found the *Bee Journal* a great help to me, as there is no association about here to help one on. I have kept bees about five years now, and am glad to say I have always had a balance *to the good.*—C. H. GARDNER.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

G. UDEN.—The comb is affected with foul brood of very old standing, and we are not surprised the bees gradually decreased. The combs and frames should be burnt, and the hive disinfected.

T. W. LEMIN.—There is a slight trace of disease in comb sent. Since you have destroyed the combs, you had better burn the frames also, and wash the hive well with a strong solution of carbolic acid and warm water, or, what is better still, give it two coats of paint.

T. J. B.—Comb is foul-broody. See reply to 'T. W. Lemin,' and take similar measures of precaution.

W. NORFOLK (Chelmsford).—For full details of frame-hive management, get the little book entitled *Modern Bee-keeping*, price 7*d.*, from J. Huckle, Kings Langley. If fed according to instructions therein, the bees will fully occupy nine or ten frames before the season is over.

W. G. MOORBY ('Old-fashioned').—If you will send us your full address, we will write you by post in reply to query.

S. JORDAN (Bristol).—Yours will appear next week.

B. C. (Bradford).—The failure of the honey-season is causing the premature destruction of drones, but enough will be left to fertilise your queen. Standing-room for hives at the heather generally costs 1*s.* per hive, and they should stay there about four or five weeks.

*** *Several Communications, Reports of Shows, &c., received late, are held over till next week.*

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Editorial, Notices, &c.

USEFUL HINTS.

Weather.—July has come and gone, with its first fortnight a failure for bee-keepers, and the latter half of the month fairly good. How far bees have been benefited in the various districts of the kingdom by the long-looked-for change in the weather, reports so far have not reached us in sufficient numbers for us to judge, but it is reasonable to expect that a good deal of honey has been stored during the last ten or twelve days. Great hopes appear to be entertained of a good time at the heather, of which we hear glowing accounts as to its fitness for honey-gathering. There was just too little time left of the waning clover season to be of more than passing service: the bloom will not yield nectar at an hour's notice; indeed it needs a day or two of warmth and sun ere honey is secreted in the bloom after so long a period of wet and cold as we have had, and bee-keepers in consequence, who have only the clover to rely on for a harvest, must look to what promise there is from second-crop clover. As there has been so much rain since the meadows were cleared of the hay crop, there should be plenty of growth and bloom; and the weather is now becoming really summer-like in its warmth—too late to be of much service in making up for lost time, but still giving the bees a chance of considerably reducing our orders for sugar.

Re-queening.—The proper season for changing queens is now close on us, and many faulty or worn-out ones will have been marked for removal; but in such an exceptional season as this, some care will be required before destroying queens on account of age only. We like to have our queens renewed after they are two years old, but none can deny that sometimes most excellent results are got from queens in their third season, and this brings us to the question of age, which is not quite understood by many, and may be here cleared up a little. Say a queen is hatched out in May, 1890. She keeps for four or five months of this year, and in 1891 may not swarm at all. In the following May of 1892 her stock sends forth a swarm which she heads. In the autumn of the year 1892, that queen should be, according to our view, condemned as unfit for further keeping, and be superseded accordingly. She is not three years old: her age is only about two years and three months, but many young bee-keepers unthinkingly destroy queens when their age is only about fifteen months, with the idea that they have seen two seasons' service, and so are 'old queens' at the end of the year following that in which they were fertilised.

It is to be feared that so many mishaps have occurred this year through adverse weather preventing the mating of young queens, that a good deal of 'uniting' will be needed in order that no stock may be put up for winter without having a healthy prolific queen at its head, and in this connexion we advise that a good queen which has already done two seasons' work should be preferred to one showing inferior qualities, though at the end of only her first season. All surplus young queens—known to be fertilised and laying—must be removed from second swarms and casts when uniting, and take the place of aged and worn-out ones in other stocks.

Foreign Queens.—We begin to hope that the rush after novelties in the shape of imported queens is now falling off, and that bee-keepers will, ere many years have passed, realise the fact that, for Britain at least, there is no bee possessing the same all-round good qualities as the old black variety, in our early days known as the 'old native black bee,' but which of late years as we are taught, is more correctly named the 'German brown bee.' Anyway, it is the variety *we* prefer, and this preference is shared by most bee-keepers who make a success of the pursuit in this country. If the foreign bee were left 'severely alone' for a few years, the labours of the 'Query and Reply' column in this *Journal* would be considerably lessened, and the troubles of bee-keepers lightened.

Remedies for Foul Brood.—It has become a matter for quite serious consideration with us when the oft-repeated question is put, 'How shall I cure my bees of foul brood?' We desire to give information of practical value in reply, and find ourselves confronted with opposing elements whereof we can form no accurate idea, but which have an important bearing on each individual case. Several remedies are before the bee-keeping world—some old, some new. *Salicylic acid*—the only remedy of which much was known in the days of our personal experience of the disease—is still considered by many as one of the best reventatives extant,

while others have tried it with no good result whatever. *Phenol*—since the days when Mr. Cheshire made public his perfect success with this powerful antiseptic—has been used still more extensively with more or less success or failure, but so often the latter that it was felt we had not yet got control of the pest.

Then Mr. Sproule, who has all along been one of our most persistent searchers after a reliable means of cure, began experimenting with *formic acid*, and obtained some really valuable results therefrom. When the use of formic acid is better understood, and its price has been considerably reduced—for we see no reason whatever why one chemist should sell it for 6*d.* per ounce, while another charges 2*s.* for the same quantity—we think it will be a very effective agent in careful hands. The price, however, is at present against it, so far as working-men bee-keepers are concerned. Finally, there is the latest remedy of all, *Naphthaline*. Would that this last were proved to be the long-sought-for antidote! It is easily obtained, nominal in cost, simple in application, and our only fear is that its powerful odour, though not unpleasant to us humans, may be so annoying and irritating to the bees as to lessen their desire for active work.

We have then before us these several remedies, each good in its way, but of which it is quite impossible for us to say that any one of them will *cure* foul brood. It is for those whose bees are afflicted with disease to make trial and report results. If our own bees were affected and we were endeavouring to cure them, it might be easy to say which we had the best results from; but as it is, we can but read each correspondent's letter, inspect the sample of comb sent, and advise a trial of the remedy we consider most suited for each individual case. Not a few are so bad that nothing short of 'burning the lot' would be of any use. Others are so slight that a comparatively mild course of treatment may restore the bees to health. Unfortunately, however, we are not possessed of the power some seem to credit us with, of sending them five lines of reply, and, presto! the disease is gone! What we desire is that some may try the *new* remedies, using both formic acid and naphthaline in different hives, and report which is found most effective, or if either is of real service. Some good will thus be done whatever the result, for we shall know what value there is in them.

For mixing with bee-food as a *preventative*, we *always* use salicylic acid: where the disease is present and to keep it from *spreading*, we should use phenol; and for the rest let us have a fair and full trial of formic acid and naphthaline in endeavouring to cure stocks where the disease is present in moderately mild form; but in cases of malignant foul brood, we can only repeat our advice, Burn the hive and all its belongings. Such is all we can offer by way of assisting readers in curing foul brood, except referring to Mr. Garratt's method of treating the disease as set forth on p. 329 of *B.J.* for July 10th.

DEVELOPMENT IN THE HONEY BEE.

By R. A. H. Grimshaw.

(*Continued from page* 258.)

We have now accompanied the honey-bee, in imagination, from its supposed birthplace in the tropics northwards, as its surroundings became gradually suitable for its habitation and reproduction. To those who believe that all living things were created in the neighbourhood of the Garden of Eden, in the time of Adam, it will be no difficult thing to trace the migration of the bee into Egypt, where it was held in great reverence as a type of industry; then along the old Syrian caravan route into and through the Holy Land, spreading across by man's agency into Cyprus, where it remains to-day as pure in race as it is possible to imagine, advancing in its wild state northwards and westwards through Asia Minor, making its entry into Europe *viâ* the Dardanelles, the eastern deserts directing its course by erecting the suitable conditions under which nectar-yielding plants may flourish. The mountains of the Caucasus and the bleak Russian steppes would offer an effectual barrier against a direct northerly course. All the islands of the Greek Archipelago would be invaded by the insect, which is said by the North American Indians to precede the white man. Honey- or nectar-yielding plants were in the greatest profusion in ancient Greece, of which the ancient historians almost succeed in giving us a flavour by their graphic descriptions. Was it not here the gods came out of heaven to eat ambrosia and drink nectar with the sons of men, when the ichor which took the place of blood in their veins needed stirring up and stimulating? Let the honey-bee then pursue its peaceful invasion of our continent by way of Greece, the Dardanelles, and swarming across the Bosphorus; the thyme-clad slopes of the Albanian mountains: the plains of Northern Greece, brilliant with glowing scarlet anemones rich in purple pollen, golden sheets of narcissi yielding nuggets of yellow bee-bread, banks of blue squills adding their modicum of grey-green to the gorgeously coloured stores gathered by the new colonist, offered the best temptation for it to increase and multiply on the face of the land, to people the earth with its kind. Let us at this time think of it in its very Arcadia, its wildest Utopian vision, at home in the home of the rose, if there be a perfect home on earth for this queen of flowers (2000 years ago Sappho wrote:—'If Jupiter wished to give the flowers a queen, the rose would be their queen'). Not such roses, reader, as we are in the habit of seeing—a doubled-up globe of petals almost devoid of pollen and nectar, an unnatural ball of stamens aborted by so-called art into floral leaves. Here in Bulgarian vales the wild briar (the cabbage-rose we call it) grew in the greatest profusion, loading the air with the richest perfume given by any variety of rose; single and semi-double varieties covered the warm, rocky, sun-exposed aspects with growths the stems of which to this

day are often the thickness of one's wrist; the air was heavy at even with subtle fragrance, nectar was yielded copiously, and bees could drink their fill, and store for their young honey flavoured with attar of rose by the hand of the cunningest Alchemist of all. Well may we read of luxurious Nero putting his hosts to the trouble of having fountains playing rose-water, the floors bestrewn with rose-petals, the guests garlanded with roses, festoons of them round their necks, roses cooked for food, washed down with rose-wine, baths of rose-wine; and as we are told, after breathing, wearing, eating, drinking, lying on, walking over, and sleeping upon roses, a rose-draught was prescribed for the sick epicurean. Here in Balkan dales is distilled the soul of the rose-bloom, which for ages has been the most *recherché* of perfumes—attar, otto; and at this day, from this very Provence rose, our all-important bee is credited with imparting a most characteristic *je ne sais quoi* to the attar of Nice, by carrying pollen from the orange-blossoms into the rose-blooms. *Apropos* of this idea, we do not all believe that insects (and, above all, honey-bees) indiscriminately visit flowers of different species on the same trip (the grains of pollen are so varied in shape that they would not mass together in the grooves of the leg); but very often, as flowers have various times of the day for blooming and shedding pollen from their anthers (or, what is the same thing, readiness for artificial dehiscence), bees change their pasturage without waiting to clear themselves, or be cleared, of numbers of grains of pollen scattered about amongst the body-hairs, this duty being left to the quieter hours of the night when the honey-rush is suspended. In such cases flowers of differing species have often a chance of obtaining what they do *not* want: their appliances (hooked or sticky) for entrapping and capturing grains of pollen from others of their own kind, are also successful in getting useless ones from foreigners. So, perhaps, with the orange blossom and the rose: and, here in passing, I have noticed orange pollen to have a strong odour of the fruit-skin, different quite from the nectar smell of orange bloom.

The passage of the honey-bee north-westward into Carniola, on the one hand, and into the Ligurian peninsula on the other, is very easily understood, whilst an intermediate arm or army of conquest makes its way into Germany and Denmark, the land of the Vikings, the sea-lions, who used to consume immoderate quantities of honey drink, mead or metheglin. How the bee crossed the Channel must remain a matter of surmise. The mead-drinking conquerers who founded towns all round our shores would surely not fail to ship a supply of the honey-giving fly to their future homes, supposing they did not find it there already. I prefer to think that the bee was well established in Great Britain at a period long anterior to conquest by the foreigner. Geology tells us, by the unfailing accuracy of its orderly, book-like, leaf-like strata, indelibly impressed with lines and letters of unimpeachable truth, that at one time the land at and near the Straits of Dover was not submerged. Thus, the seeming difficulty of a highway may fitly be bridged over without calling for too great a stretch of the imagination.

The fact of the bees of Carniola and Liguria possessing so little of that irritability of disposition which ends in stinging may, not unreasonably, be attributed to the check to emigration given by reaching a *cul-de-sac*, from which they find it useless and unnecessary to emerge. In the Italian peninsula there is a perfect home, a region of quietness in which they may peaceably proceed on the track of development without disturbance from the many natural enemies they encountered in the ages during which they passed northwards as the northerly vegetation became suitably sustaining to them; this vegetation requiring also, in return, the help of the bee in cross-fertilisation as wages for the nectar it has provided.

Air of such purity and crystalline clearness that the human eye is tricked and deceived as to relative distance, yet distinguishes the warm valleys of sunny Italy and the neighbouring Swiss Alps. A simply perfect bee-flora abounds in sheets of mountain thyme, filling the air with fragrance from its thick carpets and cushions, clinging to and clothing the cool moisture-condensing rocks; purple aubrietia, beloved by bees, fights a friendly battle for possession and survival with the cloud-like curtains of arabis (so deceptive at a distance that it is suitably surnamed 'mountain snow;' delightfully perfumed alyssum is there, too, in its season, with all the host of white Alpine plants so rich in secreted nectar and pollen. The spring is past; the snowdrop and hepatica, first heralding the melting of winter snow and the piercing of the frozen earth-crust, have gone, their seed-pods fattening from their fortuitous fertilisation; purple, golden, blue, and white crocuses appear in turn amongst the emerald-green herbage; aconites, snowflakes, white lilac, blue, crimson, and scarlet anemones, intensely blue squills, and gold-flaked celandines clothe the semi-shaded soil of the underwood, and tempt insect life by glowing gems of gorgeous colour, and bewitching wafts of subtle perfumes, to visit the warmer shades of the woods spread out as a warm forest of branched network, breaking the heat-rays which would otherwise radiate and dissipate themselves into the dense cold air, and leaving the ground a necropolis of vegetable life. So, by the simple protecting arms of her trees and shrubs does Nature make nurseries for her tender child-flowers.

Under the shelter of rhododendrons, laurels, aucubas, and such-like plants, lilies and fritillaries are simply 'at home' amidst their blankets of dead leafage heaped around them by autumn winds. No matter how far we climb the mountain slopes, until we reach the limit of vegetation we shall find some trick of the trees to tempt the ascent of the bee. The birch and hazel (first to clothe a barren spot),

alder, larch, pines, and oaks, offer pollen and propolis, the scent of which creeps down the mountain side heavily and stealthily under cover of darkness, until the early bee, aroused by the glinting horizontal rays of the rising sun striking in the portals of home, 'scents the morning air,' and rises on her circling survey; then, finding vigour in the warm sunbeams, she darts up the aromatic lines before they too dart upwards and away, blindly following the true, if unseen, cord that guides her to 'fresh woods and pastures new.' Returning, smeared with aromatic bud-gum or charged with a perfumed droplet of dew, she meets the laggard on her upward chase, and drops into her home, where multitudes of eager mates are instantly agitated by the pungent perfume into participation of the greedy race for what is so temptingly laid for them as a bait and a bid of wages for services wanted, 'a lively sense of favours to come.' Natural stores, the surplus of years gone by, are in abundance; pollen is in plenty along the margins of the lakes, and the steady percolation of dripping water through the beds of moss-like sphagnum gives the bees the most perfect water fountain imaginable.

Who has not observed the strong fancy of the honey-bee for the wet drip from growing and decomposing vegetable matter, charging the clear drink with health-restoring salts so much fancied and apparently so necessary in the economy of the hive? As the bee, in her development and migration, travels northwards, the plants on which she delights to feed grow at always less and less altitudes, in order to secure a profusion of bloom; plants which grow luxuriously at sea level in North Europe, are found in an equal state of vigour in the latitude of Great Britain at two or three thousand feet elevation; travelling back in imagination to the Swiss, Italian, and Austrian Alps, the same hardiness is only reached by them at from five to seven thousand feet above sea-level. Here the purple flowers of the lime-loving Viola calcarea (with flowers about an inch across) and its numerous congeners fight for supremacy with the intensely blue spring gentian, whose vivid clumps of bloom, mixed with its kindred Bavarian gentian, arrest the eye of man from the contemplation of the beautiful nature surroundings, and he, therefore, has the audacity to assume that these, and all other gems of God's green pasture, hill, and mountain, were created for *his* admiration and enjoyment, totally forgetting the hosts of the insect world for whom these attractions are but colour-baits, and signals that they are 'at home and prepared to receive company.' Man always forgets that many million times more flowers (significant and insignificant), than his eye ever rests upon, for him 'waste their sweetness on the desert air.' Surely when Gray wrote his 'Elegy,' he left out of reckoning the clouds of insects darting about in the sunlight wherever flowers blossom: and we truly often forget the first law of nature—self-preservation: that the flowers were developed for this purpose, coloured ones for insects, the insects for the flowers, and for such animals as prevent their too rapid increase; so on and on, round the circle of Nature's harmony, the strong preying upon the weak that the strong conqueror may survive the victimised species of its odd survivals, developing greater strength, and thus preventing its extermination. Man *himself* only maintains his *unit* of place in this world-wide struggle.

(*To be continued.*)

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

Boston Show.

Notwithstanding the many other drawbacks experienced by bee-keepers this year, the more prominent shows have been favoured with exceptionally fine weather all round. At Rochester, Plymouth, and now at Boston, at each of which we were present, the weather was all that could be wished for, and we hear of its having been equally good at Nottingham. In fact, there has wanted but one accompaniment at each place to make the show perfect from the bee-keeper's point of view, and that was a really good and complete display of hives and appliances. Lack of interest there has been none at any of the shows; indeed, had the promise of the early portion of the year been even in part fulfilled our most hopeful predictions would have been verified, and resulted in a splendid year for bee-keeping generally.

The active personal interest taken in the meetings of the Lincolnshire Agricultural Society by influential members of that body always ensures that its annual show will be a success from an agricultural standpoint, and the whole arrangements for the Boston meeting were as nearly perfect as could be. The ground was admirably chosen, the weather fine on all three days, and the attendance not far below the highest on record. Our chief interest was of course centred in the bee department, of which Mr. Walter Martin, of Wainfleet, was the moving spirit, and we were not a little disappointed at the small response made by our appliance manufacturers in entering for the collection class, where prizes of 5*l.*, 3*l.*, and 1*l.* were offered for the best collection of goods. In the single class for 'best and most complete hive, price not to exceed 12*s.* 6*d.*,' Mr. Meadows took first and second with two hives similar in construction and design, but improved in several important features since the hive was first shown, early in the season. As staged at Boston it is a very complete and cheap hive—in fact we don't quite know how it can be made for the money. It has a movable porch, sliding entrance of the simple kind we like, a shallow eke which fits under body-box in winter, the latter containing twelve frames with the new registered top bar, a shallow-frame surplus chamber (with wood-framed queen-excluder), lift for roof, quilts, and, finally, a stout stand of a new pattern; and we would ask, Where is

the maker's profit when all this is supplied for 12*s.* 6*d.*? Mr. Renshaw took third with his 'Nottingham prize hive,' now increased in price, but still good value at 12*s.* 6*d.*, though not so complete as Mr. Meadows' hive. Mr. Baldwin showed a good hive, but no doubt had reasons of his own for considering it worth the limit price without surplus arrangements, and so he staged his hive without these necessary adjuncts, when 'completeness' has to be considered.

In the class for novelties the first prize was taken by what we have long desired to see, viz., a bee-keeper's 'work-bench.' The article shown does not quite come to our ideal 'bench,' but it is a good step forward in that direction. It consists of a tin-lined uncapping table with raised ledge all round; at one side is the 'knife-heater,' level with top of bench, and heated by a lamp below; in the middle is a good-sized circular opening with a 'scraper' across its centre, and below this stands the large capping dish, and thrown into which all cappings and loose honey fall. If the bench were raised six inches higher, enclosed all round its lower part with cupboard doors opening into it, and had a stout lid to slip over the top, strong enough to stand frame nailing and all the other jobs a bee-man has to perform, it would make a most useful adjunct to the bee-keeper's plant. Moreover, it is an article that any amateur joiner may make the woodwork of himself. The second prize in this class went to a collection of 'inventions,' among which was Mr. Meadows' new top bar, a folding tin section case, which can be sent out in the flat, a new section extractor, and a honey vat for shop use. The third prize was awarded to the 'Facile foundation fixer.'

In the honey classes a very fair display was made considering the season, both exhibits in class for the best display of honey from one apiary being very creditable. Sections also were very fair, and extracted honey, though no specially good sample was staged, was good all round.

Mr. Baldwin had charge of the bee-tent, and was 'at home' therein as usual.

Below is the full prize list:—

Class 142. — Best exhibit of comb and extracted honey in any form. 1st and silver medal, T. Sells; 2nd and bronze medal, John Emmerson.

Class 143.—Best twelve 1-lb. sections of comb honey. 1st, Charles A. Grimwade: 2nd, T. Sells; 3rd, Capt. W. Ord: 4th, T. Badcock.

Class 144.—Best 24 lbs. run or extracted honey in glass jars. 1st, Percy Taylor: 2nd, T. Sells: 3rd, Capt. W. Ord; 4th, J. R. Truss.

Class 145.—Best observatory hive. 1st, T. Sells; 2nd, H. O. Smith.

Class 146.—Best collection of hives and appliances. 1st, W. P. Meadows.

Class 147.—Best rapid feeder. 1st, W. P. Meadows; 2nd, Turner & Sons.

Class 148.—Best slow feeder. 1st, W. P. Meadows; 2nd, Charles Redshaw.

Class 149.—Best and most complete frame hive, price 12*s.* 6*d.* 1st, W. P. Meadows; 2nd, ditto; 3rd, Charles Redshaw.

Class 150.—Best extractor. 1st, W. P. Meadows: 2nd, ditto.

Class 151.—Best pair of section racks. 1st, W. P. Meadows; 2nd, Charles Redshaw.

Class 152.—For interesting and instructive novelties. 1st, T. Sells; 2nd, W. P. Meadows: 3rd, T. Badcock.

NOTTS B. K. ASSOCIATION.

The annual show of the above Association was held in connexion with the Notts Agricultural Society at Wollaton Park, Nottingham, on July 16th and 17th, and but for the unfavourable season an exceedingly good and large show would have resulted. It was a source of disappointment to the executive of the Bee Association that the season handicapped them so very severely, and tended to reduce the quantity and quality of the display. The Notts is one of the most active associations now working; fifty new members have joined this year, and the very active Hon. Sec., Mr. Pugh, is deserving of all praise for the energy with which he pushes on with the work.

Unlike most Bee Associations, the N.B.K.A. is fortunate in having for president a nobleman (Lord St. Vincent) who is himself a bee-keeper, and besides taking a special interest in the bee department, is an exhibitor and prize-winner.

The arrangements for the show were excellent, and reflected credit on the Association and its indefatigable Hon. Sec.; in fact, with fine weather, a capital attendance—especially on the second day—and the bee-tent well patronised, no drawback was experienced beyond what was entirely attributable to the poor season. The entries in the bee and honey and hive classes numbered 116.

List of Prizes.

Appliances.—Best collection of hives and appliances—1, R. W. Pett; 2, E. C. Walton. Best and most complete frame hive, price not to exceed 10*s.* 6*d.*—1, R. W. Pett; 2, E. C. Walton; 3, Charles Redshaw.

Bees.—Best specimen of bees (any race), exhibited with the queen in an observatory hive—1, R. W. Pett; 2, M. E. Kirk; 3, Arthur G. Pugh; 4, J. Clarke.

Honey, &c.—For the best twelve one-pound jars run or extracted honey—1, J. Wilson; 2, B. S. Rawson; 3, J. W. Rawson; 4, T. S. Rawson; 5, F. C. Piggin. For the best twelve sections of comb honey — 1, Frank H. K. Fisher; 2, Matthew Lindley; 3, W. Measures; 4, Lord St. Vincent; 5, J. W. Rawson. Best six one-pound bottles of granulated honey—1, William Silver; 2, J. Wilson; 3, R. W. Pett. Best exhibit of beeswax, not less than two pounds—1, Lord St. Vincent; 2, Thomas J. Gosling; 3, B. S. Rawson.

Bee-Driving Competition.—1, J. White, Eastwood; 2, A. G. Pugh, Beeston; 3, — Hayes, Beeston: 4, R. J. Glew, Clifton.

AN INQUIRY.

A gentleman residing at Stoke, Devonport, is commencing bee-keeping, and would be glad to confer with some near neighbour who has had experience. The Secretary of the British Bee-keepers' Association will be glad to hear from any one willing to assist. Address, J. Huckle, Kings Langley.

SHOW OF HONEY AT ARMAGH.

Bee-keepers were well represented at the Armagh Show, held in the primatial city of Ireland on Wednesday and Thursday, the 16th and 17th July. This show is held on a very extensive scale, and embraces flowers, fruit, vegetables, poultry, dogs, butter, honey, and horse-jumping. It takes place every year in Mr. Geo. D. Beresford's demesne, known as the Palace Farm, about half a mile from the cathedral city. The ground is admirably adapted for all the purposes of the show, and the tent arrangements of the Committee are always excellent. This year, notwithstanding the gloomy prospects of bee-keepers, there were twenty-six entries of honey from the counties of Armagh, Monaghan, and Tyrone. Owing to the bad season the sections were not so well finished as they ought to have been, but complaints are universal about the failure of the bees to seal the rows of cells next the wood. However, the colour, consistency, and flavour of the comb honey was very good. The extracted honey was dense enough, but some of the samples staged were rather dark in colour, and had the unmistakable flavour that denoted the presence of 'aphidal sweets.' All the exhibits were shown in particularly neat show-cases of polished wood and glass, with the exception of one of tin in place of the wood. This belonged to and was made by Mr. W. J. Anderson, of Caledon, co. Tyrone, and was a novelty to the North of Ireland. It seemed well finished, the panes of glass forming the sides were easily lifted out, the top opened with a hinge and was fitted with a hasp for a small padlock. Another advantage that was pointed out was that when required it could be more perfectly and rapidly washed out and dried than a similar case of wood, being at the same time of less bulk, which is a consideration when the ways and means of carriage to a show are taken into account. The Rev. W. H. Lett, Aghaderg Glebe, Loughbrickland, performed the duties of judge. The tent devoted to the honey was on both days the centre of attraction to a great crowd of bee-keepers, who 'compared notes' and 'reported progress' as to various matters connected with their favourite pursuit. Except in one or two districts it appears that both swarms and honey-yield are this year far below the average.

The following is a list of the prizes awarded:—

One super of honey, ten pounds or under.—T. G. Peel.

Twelve sections of honey, one-pound size.—1, T. G. Peel; 2, W. J. Anderson.

Six sections of honey, one-pound size.—1, T. G. Peel; 2, W. J. Anderson.

Six jars of honey, two-pound size.—1, John Tuft; 2, T. G. Peel.

Six jars of honey, one-pound size.—1, John Tuft; 2, T. G. Peel.

Correspondence.

The Editor does not hold himself responsible for the opinion expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements*).

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

BEE-HOUSES IN SECTIONS.

[281.] Will you allow me, in reply to your N.B. correspondent, to suggest a very simple design for a portable bee-house?

The most covenient shape for a small house would, I think, be octagonal. I will therefore describe such, and it will be evident that it can very easily be enlarged or modified. This house would be 5 ft. high at wall-plate (7 to 8 ft. over operator), 8 ft. in diameter, could hold seven large doubling and storifying bar-framed hives, could be set up or taken down in fifteen minutes, and when removed would consist of only two packages, each about 6 ft. × 3 ft. × 2 ft.

1st.—For the sides construct eight panels (like ledge doors) each 5 ft. × 3 ft. × 1 in., having three battens each 3 ft. × 3 in. × 1 in. (fig. 1.) N.B.—One of these panels should be pierced for a small 'wicket' door as shown by dotted lines.

2nd.—For the roof construct eight triangular panels each 6 ft. long, 3 ft. 6 in. wide at base (fig. 2), and 2 in. wide at top.

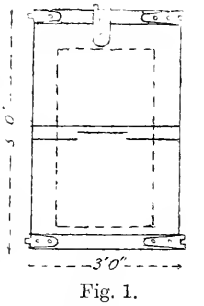


Fig. 1.

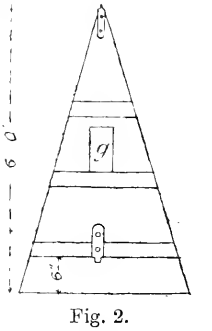


Fig. 2.

3rd.—Next procure twenty-four strong strap hinges at least 6 in. long, and having strong pins

running through their eyes. Knock out this central pin and replace it by an equally strong piece of wire, with loop for handle (fig. 3). Also file the edges of corresponding eyes in hinges, so as to let them be connected very easily.

4th.—For ridge-piece take a balk of timber about 6 in. square and 12 to 18 in. long. Divide each side of one end into three parts and draw lines across like the dotted lines in illustration, plane off the angles marked X, and you will have an octagonal bar (fig. 4). Drive staples into each side about 6 in. from one end, and

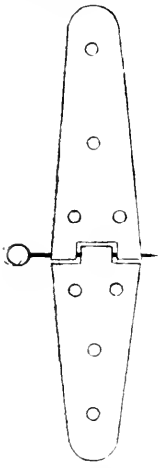


Fig. 3.

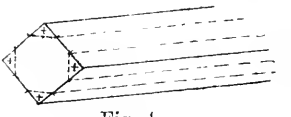


Fig. 4.

finish off the upper end in any pattern that you may desire.

Now fasten a half-hinge on each corner of side panels as shown in elevation (fig. 1), taking care *in every case* to put the half-hinge having two eyes on the right side, and the half-hinge having only one eye on the left side. Fasten another half-hinge pointing upwards in middle of upper side, as shown. Fasten the corresponding half-hinge to middle of lower batten of roof panel (fig. 2). Also make and fasten on top end of roof panel a similar half-hinge ending in a hook (instead of an eye) (fig. 5), which is to be hooked into staple driven into the ridge-piece.

Fig. 5.

This completes the house. To erect it, select a level piece of ground about 9 ft. square. Set up a pair of the 5 × 3 ft. panels side by side and run a looped wire through eyes of hinges at top and bottom of corresponding sides. These two sides if put at any angle (fig. 6) will stand by themselves; add the remaining side panels one by one and you will have an irregular octagonal figure (fig. 7). Bring it to about the desired shape

Fig. 6.

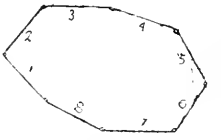


Fig. 7.

and then stand inside it on a box or stool, and let a friend bring you two of the triangular roof panels, and hinge them on opposite side panels, hooking their upper ends into ridge-piece. When the eight roof panels are fastened into their places you will find that the sides will have been drawn into an exact octagon. It only remains for you to drive a peg into the ground at each of the eight angles inside and the bee-house will stand secure.

To furnish it cut seven shelves or flaps, each 2 ft. broad, the outer edge being 3 ft. wide and the inner edge only 16 in. (fig. 8). Hinge the upper face of each shelf to lower side of central batten in each side, so that when not in use it can fall down flat against side, and cut a slit 6 in. × ½ in. through side of bee-house for a bee-passage. Cut fourteen laths 2 ft. 6 in. × 3 in. × 1 in. and hinge two of them to bottom batten of each side panel so that they may support the shelf when in use, and when packed may lie flat over same shelf. These details are made clear in fig. 9.

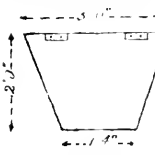


Fig. 8.

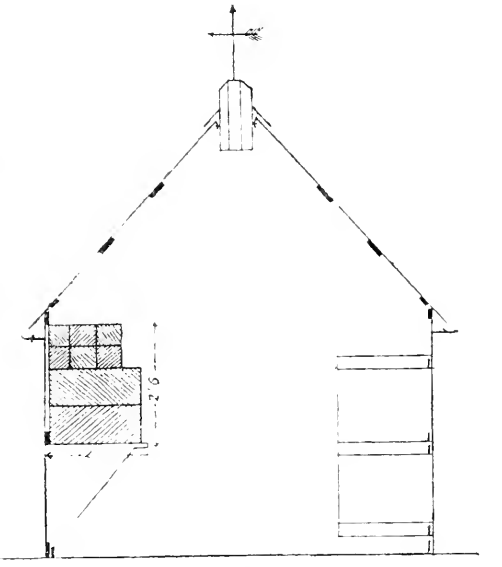


Fig. 9.

A small alighting-board can be easily secured by screws to outside of house opposite each hive when in use, and as easily removed when desired. In the same way a strip of zinc, 6 ft. long and 6 in. wide, could be tacked over joinings of roof panels, and panes of glass 12 in. long and 3 in. to 6 in. wide inserted in roof for light and ventilation.

When the house is erected it would be well to finish it with a neat eave-spout, and also slightly lower the ground for a few inches all round it to keep out damp.—H. W. T., *Co. Cork.*

FORMIC ACID AND FOUL BROOD.

[282.] Thanks for your prompt reply of the 5th. I have used the formic acid remedy, as recommended, and send result up to date. Examined hive on 15th and found improvement; refilled comb and closed until to-day, when I

examined again, finding further improvement, but still traces of the disease. As the stock is short of stores I am going to feed, adding one teaspoonful of formic acid to quart of syrup, as advised in *B.B.J.*, June 26th. Any suggestions for further treatment should be glad to receive by post or *B. B. J.*—C. FERRINGTON, *Shropshire. July 22nd.*

[By all means continue the present treatment, and report further.—EDS.]

A STRANGE INTRUDER.

[283.] I send you a strange little insect I found to-day in the back part of the hive of a friend of mine. The hive is perfectly 'bee-tight' in every part from the outside (save, of course, the entrance), and the stock an unusually strong one. How it could manage to pass through a mass of bees and bring those large leaves with it through a small aperture between the top of the frames and the cloth, so *small* that a bee has not been able to pass through, is more than I can understand. You will see that the leaves are birch leaves, and within the last two days it has brought in what I send you, and made a nest of them.

The little creature was first noticed running about the back of the hive about two days ago, and not more than one has been seen at any time, so that the man in charge of the apiary, who first noticed it, says it has no mates. I am anxious to know what it is?

This is the worst season in all my recollection of bee-keeping for honey. Not one around here has got an ounce of honey; in fact, some people have been feeding for some time past.—MANGERTON, *Killarney.*

[The insect forwarded is the leaf-cutter bee. It must have found an entrance unknown to your friend, as it would never attempt to perform its interesting labours by passing through the bulk of the bees in the hive.—EDS.]

A SWARM OF BEES SETTLING IN A PUBLIC THOROUGHFARE.

[284.] A very curious occurrence happened here last week (Wednesday). A swarm of bees (or cast rather) settled on one of the small trees in one of the leading thoroughfares in Hereford, so I at once proceeded to hive them. I got a skep and shook most of the bees into it: then put the hive on the pavement and allowed them to settle, which took about half an hour. I then tied muslin over the skep and conveyed them home. I am feeding them. I put them on eight frames with comb foundation in, and they have already drawn all the comb well out, although it only happened three days ago. I imagine it is a rather rare occurrence for a swarm to settle in the public streets, and such a thing has only happened once before in this city, and then within a hundred yards from this spot. I thought your readers might be interested in hearing of my own exploit.—E. G. DAVIES, *St. Nicholas Street, Hereford.*

EXPERIENCES OF 1890.

[285.] This season may be put down as one of the very worst on record. It is far worse than 1888, as the bees did that year manage to gather food enough to last them till having to be fed up for winter; but here we are, in the latter part of July and on all sides hear that the bees have done nothing. They are casting out both drone and worker brood; I have a hive that threw a swarm (May 23) which was duly hived and given a couple of standard frames of heather honey with bee-bread to help them in their new home. I soon put the sections on, but on the 16th of July it threw a virgin swarm—*never having stored any honey*, and very little comb in sections. I opened the hive and found it full of bees, with four queen-cells, two with caps off, but no honey. I cut the queen-cells out. The virgin swarm I put into a hive that had swarmed and had also sent off a cast, catching the queen. Now this swarm (May 23) has sent out a cast July 23rd, and on my throwing the bees on to a sheet, returning them to their own hive, I picked up a couple of queens as they were running in. I don't think that it is often a swarm throws a virgin swarm and cast the same season, and that with such an exceptionally bad honey season as this. On opening the rest of my hives I found them *minus* food, in a starvation condition; but they will be squared up in another twenty-four hours. I heard an old bee-keeper say that when there was an unusually great quantity of white clover he never knew bees do much good, as it was always a very wet year. I have noticed your correspondents mention the hawthorn (whitethorn). This season I never saw such a quantity of bloom, but I failed to see any bees on it, although the weather was very fine at the time. I don't say that they do not feed on it and gather honey, but having seen it stated before, I watched and failed to see them on it. 1888 closed up a lot of would-be bee-keepers *by shares.* Honey producers by the ton one year frightened the 'firm.' I think that it must have also frightened some other big firms, as we fail to see their advertisements, as before, in the *B. B. J.* And if seasons and prices don't improve I think there will be a lot who won't like it: one blessing is that a fellow won't get insulted this season by absurd offers from 'Mr. Middleman.'—J. B. B.

BEE SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

August 5.—Leicester B.K.A. Honey Fair and Exhibition of bees, hives, and honey, in connexion with the Abbey Park Flower Show, Leicester.

August 6-7-8.—Yorkshire Agricultural Society's fifty-third Annual Show at Harrogate. Prizes for bees, honey, and appliances. For entry forms apply Marshall Stephenson, Sec., York.

August 8–9.—Bramhall and Woodford Horticultural Society. 8*l.* 10*s.* and silver medal in prizes for honey, open to Lancashire and Cheshire only. Entries close July 26th. Lists from W. Slater, Rose Cottage, Bramhall, near Stockport.

August 14.—Goole and District Bee-keepers' Association. Show of flowers, vegetables, and honey. Entries close August 5th. Particulars of A. Woodhead, Edinburgh Street, Goole.

August 20–21.—Shropshire B.K. Association. Annual exhibition of bees, honey, hives, and appliances, The Quarry, Shrewsbury. For prize lists apply to Miss M. E. Eytown, Hon. Sec., Wrockwardine, Wellington.

August 27.—Exhibition of hives, bees, honey, &c., in connexion with the Lancaster Agricultural Society. Prize lists and entry forms from W. Liddell, Dale Street, Lancaster. Entries close August 6th.

September 3–4.—Lancashire and Cheshire B.K.A., in connexion with the Wirral Agricultural Society's Annual Show at Birkenhead. Nearly 30*l.* value offered in prizes. For schedules, &c., apply Sec. Wirral Agricultural Society, Birkenhead. Entries close August 15.

September 3–4–5.—West Cumberland B.K.A. first annual show of bees, hives, honey, window plants, &c., at Harrington. Forty classes and over a hundred prizes. For lists apply E. McNally, Sec., Harrington.

September 19.—Wigtownshire Apiarian Association. Eighth Annual Show at Stranraer. 12*l.* in prizes for honey. J. Balfour Robertson, Hon. Sec., the Manse of Leswalt. Entries close September 2.

SUGAR FOR BEE-FOOD.

A correspondent writes regarding sugar for bee-food, and, being the owner of a large apiary (100 hives), is naturally desirous of finding a market where he may purchase a suitable article at a moderate price. A correspondent of our monthly, the *Record*, on p. 98 of August number, also seeks information on the same point, and in furtherance of our promise made therein, a gentleman in Liverpool who, while himself a bee-keeper, is head of a commercial firm there, has at our request kindly undertaken to be the medium for supplying bee-keepers with a very excellent sugar in two-hundredweight bags at wholesale rates.

The sugar in question is one we used last autumn. It makes an excellent bee-food. It is an Egyptian pure cane sugar, in colour and grain resembling Dutch, but containing a much larger proportion of saccharine matter than white crystallised sugar, and will therefore make an equally good syrup with a larger proportion of water.

Bee-keepers may obtain the above in the original two-hundredweight bags as imported at 17*s.* 6*d.* per hundredweight on rail at Liverpool, and as no profit is expected or asked by the vendor, it is a *sine quâ non* that in all cases cash must accompany orders addressed Messrs. R. Bennett & Co., Brunswick Street, Liverpool. We must also add a personal request that Messrs. Bennett may not be burdened with more than the necessary correspondence on the subject, as their share of the matter is undertaken solely to accommodate bee-keepers.

Queries and Replies.

[162.] *Foul Brood.*—I enclose a piece of comb taken from a swarm of this year which I believe to be badly affected with foul brood. I have also three other stocks in much the same condition; and so, if it really is as I suspect, will you let me know, through the *B.J.*:—1. If there is a chance of curing them. 2. What would be the best remedy for me to try. 3. Would it be wise to unite some driven swarms? 4. Will the empty sections taken off the diseased hives be safe for use another year?—A Working Man.

Reply.—There is foul brood in comb sent. We should be inclined to think it has been contracted through using a hive for the swarm in which the germs of the disease were already established, as foul-broody stocks do not often throw good swarms. Replying to your other questions:—1. Refer to the letter No. 250 in *B. J.* for July 10th, and to the directions for using formic acid on p. 307 of *B. J.* for June 26th. Here are two methods of dealing with the disease, one without having recourse to any medicating, the other a remedy said to be very effective through the fumes of the acid permeating the whole hive. There is also the simple remedy of sprinkling a little naphthaline on the floor-board of the hive, and as the latter only costs a copper or two, besides being so easy in application, we think you might try if the disease will yield to it before incurring the greater trouble and cost involved in a trial of the others. Formic acid costs about 3*s.* or 3*s.* 6*d.* per pound, and one pound will be a sufficient for the three stocks.

[163.] *Virgin Swarms.*—A friend of mine had a swarm of bees on the 20th of May this year. I purchased them same day and placed them in a frame hive, which has ten frames with crate of sections. They swarmed out again on the 14th of this month, but returned again in less than an hour. Can you kindly inform me if there is any reason for doing so? I should say they have not been out since, though the next day was very hot, and there are still no signs of swarming. They have now nearly filled the sections, though the weather has been altogether unfavourable.—William Thos. Coster, *Potter's Bar.*

Reply.—It is not at all usual for a swarm of the current year to swarm again nearly two months after being hived, though it does occa-

sionally happen so, and they are termed 'virgin swarms'—why we cannot say. You must examine the hive to make sure the queen has returned with the swarm.

[164.] *A Beginner's Queries.*—1. Would it be a good plan to take a hive into an outdoor shed for the winter, where they would be warmer and drier? If so, when should it be done, and when must it be brought out again? 2. Do ants do sufficient harm in a hive to make it worth while taking special precautions to prevent them? Hundreds of ants had made their way into the hive, and I got rid of them by shaking them off the quilt and blankets, on which they had congregated. I then rubbed the hive legs and alighting-board all over with turpentine, and no more ants were seen for the next two days, but on the third day they returned. I then put each leg of the hive in a saucer full of water, and also propped up the alighting-board in the same way. The ants cannot get up now. Would it be best to leave it like this? 3. What should the temperature of a hive be in summer and winter? I have a small thermometer in mine, above the quilt and under the top blanket, which on Wednesday, the 16th, registered 75° Fahr. at about half-past seven in the morning, before the sun was on the hive; and at midday, when the sun had not been shining on the hive for above an hour, the temperature was 93°. Ought it to vary as much as this, and is 93° too hot? 4. I should also like to know whether bees bring honey into the hive on their legs as well as pollen, and how can it be distinguished which substance the bee carries when it enters the hive? 5. Is flour-candy of any use at this time of year, and should it be given to the bees for the winter rather than common candy?—H. E. Waller, *Highbury, London.*

Reply.—1. No. It has been proved beyond doubt that with proper management in this country bees do better when left for the winter on their usual summer stands. 2. If stocks are strong ants are rarely worse than a nuisance about hives. The bees will usually keep them to the *outside*. Your plan is effective, but of course will have the bad effect of causing the hive legs to decay prematurely by being always in water. 3. If a hive is properly constructed the temperature of the interior may be left to the bees. Except for purposes of scientific investigation we always consider thermometers as useless incumbrances about a beehive. 4. Bees only carry two substances on their legs, viz., pollen and propolis. Honey and water are both carried in the honey sac, which is not visible from the outside of the insect. 5. Flour-candy is essentially an early spring bee-food, and is better than common candy.

[165.] *Carbolic Acid.*—I have purchased a bottle of Gilbert's carbolic acid, eight ounces, price 6*d.*, and have noticed in one of our bee-books that Calvert's No. 5 carbolic acid is mentioned. Will you kindly inform me if Gilbert's acid can be used with safety? If so, should it be mixed to the same proportion of water as Calvert's, *i.e.*, one ounce to a quart of warm water?—George Montgomery (shire).

Reply.—We have never used any carbolic acid for bee purposes, except pure carbolic (phenol) in crystals for food and for medicating purposes, and Calvert's No. 5 for other bee-work. These are known and adopted by all bee-keepers, and it would be most unwise to introduce other and less-known qualities of which we have no knowledge.

[166.] *Foul Brood.*—On examining my bees a few days ago for honey I was surprised to find my two stock hives, which I had supered early in June and which then were in good condition, badly affected with foul brood. I could not mistake the smell, which, in fact, first attracted my notice, nor the appearance, as it is described in the *Guide-book* and other works and periodicals which I have. I lost a hive both last winter and the one previous with the same disease, I am sure, but then I had no knowledge of such a thing as foul brood. I had one swarm in last May which at present shows no symptoms of the disease, but unfortunately I gave it a frame of brood and honey out of one of the hives in question in July as a help, the weather being so bad. I am conversant with the method of treating with salicylic acid, but I would like to know what you think of Mr. Sproule's 'formic acid' cure. I fear perhaps the 'cost' of the formic acid 'would overcome the profit.' Of course, I wish to get rid of the disease and save my bees, if possible. They are fairly strong, and have already stored some honey in the supers. Your advice on the whole will greatly oblige.—G. J.

Reply.—A full trial of the formic acid remedy may be made at a cost of about 1*s.* 6*d.* per hive. If this is more than you care to invest there is naphthaline, which can be tried at a cost of a copper or two. We are most anxious that bee-keepers should try the various remedies recommended. It is only by practical trials that we shall be able to gauge results.

[167.] *Rapid Feeding.*—Will a stock of bees, after being supplied with thirty pounds of sugar, made into syrup, from a Canadian feeder, seal it over without further trouble?—Avondale.

Reply.—Yes, but twenty pounds of sugar will make food enough to winter any stock of bees on.

[168.] *Various Queries.*—I have been a constant reader of your *Bee Journal* for three or four years, and have got a lot of useful information from the same regarding bees and their management, and would also be glad if you would give me any information on the following questions, viz.:—1. I have two stocks, one a last year's queen and the other a this year's second swarm, and they are constantly 'niggling' at one another at the mouth of hive—that is, three or four bees biting and pulling away at a bee until they kill or disable it. Both hives are fairly strong of bees, and contain four or five full

brood sheets. I thought they might be robber bees, but found by constant watching that they were their own bees; so can you give me any remedy or cure for same? 2. In your issue (I think) of June 26th, you give formic acid (a spoonful to one quart of syrup) for spring and autumn feeding. Where can I get it, and price for same, as I went to a chemist, and he told me he could supply it pure at 2*s.* per ounce and a commercial article at 2*s.* per pound? Now, which is the right sort to get, and what good does it do to the bees? 3. A friend of mine, a large bee-keeper, is going to judge some honey at a show, and I should be glad if you could give me any good way of judging sections, and say if there is any simple way of analysing same to see if they contain what is called here sugar honey. My bees did very well in May, and could have taken a lot of sections off (plane-tree honey), but tiered same instead to be ready for clover in June, which has been a complete failure until a few days ago; so I shall have to wait now for the heather harvest, which promises to be good.—N. W.

Reply.—1. If the mischief continues, you should try ventilating below and feeding with salicylised syrup, but the symptoms, as described, are not sufficiently marked to make it certain the bees are suffering from disease at all; it may pass off. 2. The suitable article for bee use can be had from Edmondson Bros., 10 Dame Street, Dublin, at 3*s.* per pound: it is only used as a remedy for foul brood. 3. The art of judging sections can only be acquired by experience. There is no simple way of analysing honey. Taste is the usual test applied: the scientific test requires the services of a skilled analyst.

AN EXTRAORDINARY BEEHIVE.

For the past two or three weeks the congregation worshipping in the Octagon Church, Old Market, Wisbech, have been troubled with what amounted to a plague of bees. Unlike the locusts and the wild honey spoken of in Holy Writ, it was a case of bees and 'tame' honey, for after bell-ringers, choir-boys, and congregation had been most impartially stung on a recent hot Sunday, the building was carefully examined, the result being that an improvised beehive was discovered under the flooring of the bell-loft. The Rev. C. S. Harris (Vicar) at once proceeded to put himself in communication with Mr. James Dann, of Bridge Street, the well-known local expert in all matters connected with the apiary, and, with assistance, Mr. Dann at once set about 'taking the honey.' This was no easy task, but in due course about two stones' weight of fine honey came to light. It is supposed that three communities of 'busy little bees' for some time past had 'improved each shining hour' by its collection, and it is with somewhat remorseful feelings that we record the fact that they could not be 'disestablished and disendowed' without losing their lives, for they had to be smoked out. This is surely a lesson to Church defenders to stand by their own to the death, and the whole story is worthy of the pen of a modern writer of 'Divine and Moral Songs.'

EXTRAORDINARY ACTION ABOUT BEES.

John Barr, Townhead Street, Hamilton, sued yesterday in the Small Debt Court Wm. Anderson, gardener, Hamilton, for 1*l.* 10*s.*, being the price of a swarm of bees wrongfully taken by defender. On proof being led it appeared that a swarm of bees alighted in the garden of Dr. Lennox, and was claimed by Dr. Marshall as part of his stock. Dr. Lennox's coachman gave pursuer a right to take them while unaware of their ownership. The pursuer thought he was entitled to recover them from Dr. Marshall's gardener, to whom they had been given by Dr. Lennox's coachman, because they became the property of the finder, and were first given to the pursuer. The Sheriff could not maintain the pursuer's claim, and found him liable to expenses.—*Hamilton Advertiser, July 19th*, 1890.

DIARY OF S. PEPYS.

March, 1660.—12: Rode to Huntsmore, to Mr. Bowyer's, where I found him and all well, and willing to have my wife come and board with them whileI was at Sea. Here I lay, *and took a spoonful of honey and a nutmeg scraped for my cold*, by Mr. Bowyer's direction.

A BIG SWARM.

My bar-frame hive sent off its top swarm on the 17th, and it settled on a little rose-bush right in front of the hive, was easily secured, and weighed nine pounds of bees, the largest I have ever seen.—T. Adam, *Cumbernauld, N.B.*

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

E. M. (Twyford).—The comb contains nothing more serious than two or three drone larvæ which have perished from 'chill.'

Humber.—The subject of your inquiry is dealt with on another page. The two samples of cane sugar sent are either of them suitable for bee-food, but we should on no account use the German beet sugar, either wholly or in part.

George Gay.—Comb is badly affected with foul brood. Read reply to query No. 166, on another page.

*** *Communications from T. Pritchard, J. E. Roden, S. Jordan, and others, are unavoidably held over till next week.*

West Cumberland Bee-keepers' Association, 1890.

FIRST EXHIBITION, to be held at HARRINGTON, September 3rd, 4th, & 5th. PRIZES to the value of £25 are offered for HONEY, HIVES, BEES, FLOWERS, &c.

Special Classes for Ladies, and Boys and Girls.

Entries close on August 23rd.

For Prize List, &c., apply to EBENEZER McNALLY, *Secretary*, HARRINGTON, CUMBERLAND.

SHROPSHIRE Bee-keepers' Association.

The Annual Exhibition of Bees, Honey, Hives, and Appliances,

Will be held in THE QUARRY, SHREWSBURY, in conjunction with the HORTICULTURAL SOCIETY'S GREAT FETE, On Wednesday and Thursday, Aug. 20th & 21st.

PRIZES to the Value of £35 will be awarded.

For Prize Lists, Entry Forms, and Information, apply to Miss MARY E. EYTOWN, *Hon. Secretary*, Wrochwardine, Wellington, Shropshire.

ON HIRE.

BEE-TENT. For Terms apply to A. J. BROWN, Hon. Sec., Wotton-under-Edge District B. K. A. 227

Yorkshire Agricultural Society.

GREAT SHOW AT HARROWGATE,

WEDNESDAY, THURSDAY, and FRIDAY, August 6th, 7th, and 8th, 1890.

Magnificent Exhibition of Horses, Cattle, Sheep, Pigs, Implements, Shoeing-Smiths' Competitions, Butter, Hives, Honey, and Dairying.

ADMISSION.

Wednesday,	9 a.m. to 6 p.m.	Half-a-Crown.
,,	6 p.m. to 8 p.m.	One Shilling.
Thursday,	8 a.m. to 8 p.m.	One Shilling.
Friday,	8 a.m. to 5 p.m.	One Shilling.

Season Tickets, Half-a-Guinea each.

MARSHALL STEPHENSON, *Secretary*.
YORK, July 26th, 1890. 3583

BEE-KEEPING, its Excellence and Advantages. Price 3*d*. *British Bee Journal* Office, Kings Langley, Herts, and 17 King William Street, Strand, London, W.C.

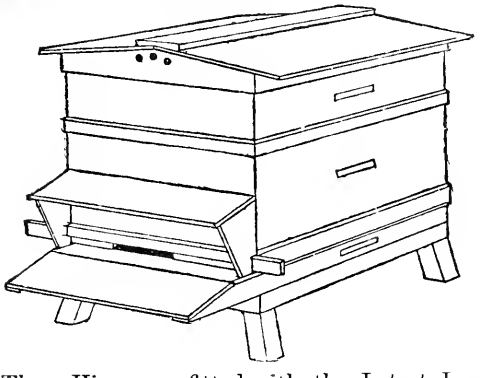
THE MANAGEMENT OF STRAW SKEPS. Designed to teach the Cottager how to obtain the best results at the least possible cost. Price 1*d*. Ditto in Welsh, 1*d*.

WINTERING BEES. By THOMAS W. COWAN. The most complete work on the subject of Wintering published. Third Edition. Price 3*d*.

JOHN HUCKLE, Kings Langley, Herts.

CHARLES T. OVERTON.

I BEG to inform Bee-keepers that I am still holding a Large Stock of AMERICAN SECTIONS of all Sizes, and all Orders can be immediately executed.



ROCHESTER SHOW.

OVERTON'S W. B. C. HIVE,

Price **15/-**, takes First Prize.

OVERTON'S ROCHESTER COTTAGE HIVE.

Price **9/6**, also gained First Prize.

These Hives are fitted with the Latest Improvements, and are most suited for General Use in Large and Small Apiaries.

FINE HOME-BRED QUEENS, 5s. each.

3 FRAMES NUCLEI made up, and any Choice Queens added.

LOWFIELD APIARIES, CRAWLEY, SUSSEX.

THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

No. 424. Vol. XVIII. N.S. 32.] AUGUST 7, 1890. [*Published Weekly.*

Editorial, Notices, &c.

HONEYLESS WHITE CLOVER.

So complete is the bewilderment of bee-keepers this year, who see around them whole fields of clover, white with bloom, in close proximity to their bees, and yet who look in vain for any perceptible addition to the weight of surplus chambers, that we can well imagine them furtively referring to their bee-books to assure themselves that white clover is really classed as a bee-plant at all, and that they have not been attaching a value to its nectar-yielding properties to which it can have no legitimate claim.

We may endeavour to explain away the anomaly, but it is none the less a fact that for two or more weeks past the sun has shone on large breadths of pasturage, the sight of which to the bee-keeper should have been 'a thing of beauty and a joy for'—well, say for a fortnight! But the bee-man is nothing if not practical, and so he is prone to measure the beauty of a field of clover on the principle of 'handsome is that handsome does.' Anyway, our favourite bee-flower has this year caused wonderment, not to say blank disappointment, among novices in the craft.

The hard experiences of such a season constitute one of the 'lessons' in bee-keeping which are well worth paying for, because, were it otherwise, and we had a too frequent recurrence of those seasons when 'if you haven't a super ready, stick on an empty soap-box, they'll fill it!' when the wheels of success roll so merrily on that any one with a month's experience to guide him may 'jump up behind,' and show his big yields of honey alongside the best of us—if, as we say, we had such seasons every year, we might say farewell to the *pleasures* as well as to the pains of bee-keeping. No, gentle reader, we want chastening a bit; not too much of the 'rod,' but just so much as will make all of us moderate in what we may justly look forward to as a fair result for our work. Here is an instance where the very mild reproof we would venture to utter comes in. A correspondent who has kept bees for three years writes us this week as follows:—'Much disheartened this season. I have had three seasons, two of which have been very discouraging. Still, my bees are not starving, as many seem to be. I hope to average from twenty to fifty pounds per hive, and I have between thirty and forty hives.'

We wonder how many bee-keepers in this year of grace would feel very 'much disheartened' if they could count on an average surplus of 20 lbs. to 50 lbs. per stock? We know of *one*—and he half envies his correspondent while ruefully penning these lines—who would consider himself a lucky individual if he could boast the minimum amount stated, and would cheerfully leave the maximum to those with loftier 'expectations.' We know of another bee-keeper (more luck to him!) who is not *very* 'much disheartened,' though his present anxiety is to find out a good market for sugar, as he 'wants to start feeding early;' and, moreover, he is the lucky (?) owner of about 100 colonies of bees, which have yielded a long way short of 20 lbs. per colony.

Our esteemed correspondent will, we hope, not consider us as charging him with an unreasonable amount of expectation as to what bees can do, if we venture to disabuse his mind of the idea that in a return of 20 lbs. to 50 lbs per stock from an apiary of thirty or forty hives there is cause for discouragement. If he thinks differently we say at once that he has set up an ideal standard of profit from the keeping of bees to which, after a quarter of a century's experience, we can make no claim. It means 35 lbs. each all round, or 1400 lbs. from forty colonies, and in order to secure

this some stocks must yield 70 lbs. or 80 lbs. to make up for those whose returns are almost *nil*.

This portion of the question, however, is altogether apart from that to which our opening remarks are directed, but it tends to show how those whose experience is limited may 'mean well, but they don't know,' and that not only must we form no extravagant estimate of what bees can do, but we must not be lost in wonderment if, owing to adverse climatic conditions, they can, in some seasons, do almost nothing at all; in fact, when it requires the exercise of all our skill to keep them alive until the advent of better times. This last is the lesson taught by a bad season, and a valuable one it is.

Old hands know well that bee-flowers may come and go, while supers remain unfilled; that the millions of tiny nectar-cups may be raised lovingly above the green herbage to receive warmth from the kindly summer sun, but that they are honeyless and valueless to the bees so long as the little heads of bloom are subject to a night temperature of 45° and are tossed about by cold winds during the day. Our typical bee-flower has no sweetness to 'waste on the desert air,' for its nectaries are dried up and honeyless for lack of that genial warmth essential to its well-doing. Thus we have gone through the rare experience of a season of almost honeyless white clover. Whether it will maintain this character in face of the summer weather we are now enjoying remains to be seen, and we ask that our readers will report any marked increase of the inflow from districts where clover is still flowering freely.

There has also this year been quite a marked contrast between the returns from the north and those from the south, the latter having so far appropriated the whole of the few small mercies vouchsafed to the bees, and we hear of one or two quite exceptional returns for so exceptional a season, one fortunate bee-keeper in Kent having secured fully 100 pounds of super honey from one hive; another, in Herts, reports as much as eighty-one pounds extracted from one stock, and a swarm of May 16th has given forty-six pounds in sections; while not a single case is reported from the north of anything but more or less failure. It is just possible our friends in the north of England and Scotland may have a 'sweet' revenge in store in the full heather crop so fervently hoped for.

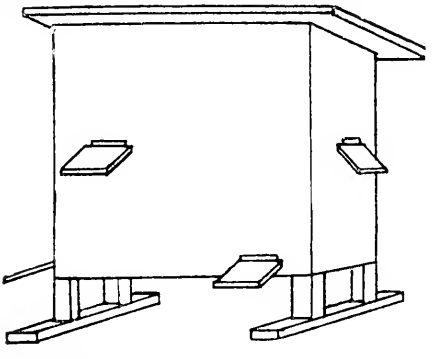
We note that one 'man o' the north' is already advertising for 'partly filled or drawn-out sections' for heather work, so it is plain they mean business, and none will grudge the good we hope it may do them, for they certainly have been left out in the cold so far as the honey production of the year 1890 has gone.

ABOUT BEE-KEEPING.—V.

By the Wife of a Bee-keeper.

Dear M.,—You have heard enough about bees and their ways to see that they will require intelligent management to be successful, and as the time is at hand when you must make a 'start,' I will say in as few words as I can what I think the best way to go about it. Your outfit at the beginning should consist of the following articles, to which I have added probable cost:—(1) A flat-topped straw skep, 2*s.*; (2) floor-board, 1*s.*; (3) material for bee-veil, 6*d.*; (4) one feeder, 1*s.*; (5) one bee-smoker, 2*s.* 6*d.*; and (6) a skep crate of frames or sections, 4*s.* Make no provision for a covering to the skep, as it is supposed to be placed in a bee-shed or house with roof to keep all dry; and you will bear in mind that the articles named will be of use for several years with care. So, if your swarm costs 10*s.*, the whole outlay will only amount to about 21*s.*; not a large investment of capital in a new venture, but enough.

The bee-house already mentioned is an item of expenditure I cannot very well enter into, except to say that where there is a 'handy man' about, it should not cost much. It should be high enough to admit of super boxes being put on, strong enough not to be blown over, and should protect the hive from the weather. The illustration herewith will give an idea of what is wanted. It is taken (together with details of its construction) from the *British Bee Journal*.



'Each house, it will be seen, holds four hives. Entrances are placed as far apart as possible, and the hives can be worked on either the storifying

or combination principle. The roof is hinged to lift up, the back opens outwards in two doors, thus giving plenty of "elbow-room." The inside is simply two long *trough*-like frame hives, and each stock is kept apart by division-boards. To those who do not wish to go to greater expense, I would recommend these houses, which, for the price of materials, do not exceed the cost of a weather-proof single-frame hive. Size of each is 4 ft. long by 4 ft. high by 20 in. wide. Materials required to make one are: Four corner posts, 2 × 2, cross-beams, 4 × 2, bottom and centre shelves—strictly speaking, the floor-boards—of ¾ in. jointed flooring: four boards, 9 × ½ in. and 4 ft. long for hive sides. All the other wood of ⅝ in. jointed and beaded lining, with roof covered with canvas, and painted to make all secure.'

Where a shed is out of the question, a good cover for a skep can be made from an American cheese-box, costing a few pence. The lid, after the rim is removed, will form the floor-board. Nail a piece of wood, one inch thick, six inches wide, and long enough to project four or five inches in front, across the underside, and two short pieces the same thickness at right angles with it. This keeps the board from warping, and the projecting piece forms an alighting-board for the bees. No doorway having been cut in the straw of the skep, the floor-board must be pared away across the full width of the alighting-board, forming an entrance six inches wide by half an inch deep. This completes the floor-board, which is a far better one practically than one of those costing a shilling. The cheese-box, with the bottom knocked out, can then be put over the skep, a corresponding entrance having been cut in its lower edge, and it only requires a large earthenware washing mug to cover all, and your hive is thoroughly protected from the weather, safe, by its weight, from being blown over, and the whole cover, floor-board included, will scarcely cost sixpence beyond the price of the washing mug.

For a 'stand,' various devices will suggest themselves; but I have bought from a builder's yard damaged drain-pipes and terra-cotta chimney-pots for sixpence each, which, when let into the ground to within a foot or so of their tops, made the best and most durable hive-stands I have yet seen.

Well, now, having given you a choice of two methods of protecting your hive from the weather, we will suppose you have the skep prepared for the expected swarm, with the loose straw cover for the circular hole in the crown firmly fixed, the stand set perfectly level, and that the swarm has arrived. It will probably be in a straw skep with a covering of cheese-cloth or sacking, and should on its arrival be set aside till wanted, in a shady spot, on something to keep it raised from the ground for ventilation. You must delay hiving the swarm till sundown on the evening of the day it arrives. Choose a level spot in the garden, and spread a newspaper on the ground, setting a stone on each corner to keep it down. Take the new skep and fix it up at one end of the newspaper, with its front edge raised a couple of inches by means of two wedges or stones. Then, when you have put on your bee-veil, lift the skep with the swarm and set it on the ground close by. Cut the string securing the covering, and place one foot on each side of the loose edges of the cheese-cloth while lifting the skep off it. Set the swarm in the skep quietly down in front of its future home (about a foot away), and give a firm, smart rap with the flat of both hands on the top of the skep. This will dislodge the whole swarm, causing the bees to drop in a mass on the paper; immediately lift the skep and they will spread out in all directions, but not a bee will take wing. With a small stick direct a few of the bees towards the entrance of the hive, and they will begin to troop in by hundreds, apparently welcoming its friendly shelter in a manner most interesting to watch. It is well to keep an eye on the bees as they hurry in like soldiers at the 'double,' because, if the queen is seen to enter, all further anxiety as to the bees may be said to end. They may be left for a short time, till all have taken possession, when the skep can be lifted on to its floor-board and placed on its permanent stand.

Next day, if fine, will see your new-comers hard at work scouring the fields and gardens around, and returning laden with honey, from which, as I have already told you, the waxen combs are built. Soon will follow pollen-gathering for the food of the thousands of larvæ which in a very few days will be hatching in the newly-built combs, and for which provision must be made. It is very wonderful to observe the perfect order in which the bees set to work; they carry away with them from their old home sufficient food in their honey sacs to last them for two or three days, thus making provision against falling on 'evil times' before establishing themselves in a new domicile. If they succeed in finding a house to their minds (as I hope your swarm will), this reserve supply of food is immediately converted into wax. In the internal economy of the bee is a wonderful apparatus for this conversion; but I cannot go into that further than to say that, after the bee has hung suspended in the hive for some hours in a quiescent state, flakes of wax are seen to exude between the segments of its abdomen. The wax is thus ready at hand for the use of the little mason as it proceeds with its comb-building. Thus, day by day, the labour of the hive goes on, and, if the weather keeps fine, we may leave the bees to work away for about ten days, in which time, should honey be coming in well, the now established stock will be ready for supering.

The super is supposed to be (when purchased) fitted with a small strip of comb foundation in each of the sections or honey-boxes. Without this guide we cannot assure the building of straight combs by the bees; and whether your super is fitted with sections for use as comb honey, or with frames from which the honey is intended to be extracted, the same rule applies,

and you must see that a strip of the same comb foundation is fixed along the under side of the top bar of each frame, or on the top side of each section.

I need not detail the make of the super or surplus arrangement, because you will have to buy this from an appliance dealer, and he will give you particulars of how it is worked. All you require is to loosen the straw covering to the opening, in the top of the skep, and, before lifting it off give it a 'screw' kind of motion to dissever any comb attachments; then a puff of smoke from your smoker to drive the bees down, and the super is set on with the opening in its lower side laid just over the corresponding one in the top of the skep. I myself like to put a circular pad (formed of a bit of newspaper) round the hole, so that when the super is made to sit on this, it keeps all close and warm, and prevents any escape of warmth at the junction of the hive and super. Every means should be used to make the surplus chamber as snug and warm as possible; indeed, on this often depends the bees taking possession and storing honey in it at once, or leaving it many days (sometimes altogether) before they will begin working in it.

Once work has begun in the super chamber, you may give no further thought to the bees for some time to come—except to see that they have ample storage-room in case of an unusually good season. And so we may leave them till the time comes for removing the bulk of the surplus, which will not be till about the end of July.—M. C.—*Co-operative News.*

HIGHLAND AND AGRICULTURAL SOCIETY'S SHOW.

(*From our Special Correspondent.*)

This show opened on Tuesday, the 29th, and when we strolled into the bee-tent about 2 p.m., everything was nicely arranged and in good shape. It was strange, however, to find that in the large classes there was not a single Scottish competitor. In honey the Show was entirely English, thanks to the response of our most noted English honey producers in answer to the appeal for exhibits made by the energetic Secretary, Mr. Steele.

For such a poor year the honey staged was good, and the arrangement of the honey in the large class was most artistic, the exhibits of Mr. W. Woodley, Lord Sudeley, and Mr. Godman being quite imposing, whilst the plentiful supply of bee-flowers, &c., added greatly to the finish of the exhibits.

The whole of one side of the long tent was devoted to the large honey classes, and this not being sufficient, Mr. Godman's large exhibit occupied the place of honour in front of the entrance. This was a grand exhibit of about 500 pounds, being almost double the size of any other. It however, only received the second prize, as, though so large, the quality was not nearly so even as that of Mr. Woodley's smaller exhibit. Next came about 109 pounds from Mr. Tom Sells, all of it sections, but not so well filled as his smaller exhibit, in Class 4, where he scored first. Lord Sudeley's exhibit was a large one, and well deserved its award. Here, again, all were sections, well put up in enamelled metal glazed cases, and prettily arranged in a central trophy with two semi-circular wings. Then Mr. John McNally, with the only Irish honey in the Show, not of high finish, but well staged by his brother, Mr. Richard McNally. Then came the premier exhibit of the Show, Mr. W. Woodley, of World's End, Newbury, being the taker of the much-coveted silver cup; and certainly Mr. Woodley richly deserved his award, not only for the honey in itself, which was quite equal to his exhibits in former years, when circumstances have been much more favourable for honey-gathering, but for the attractive way in which it was got up. We were talking to those who had been staging the exhibits, and were told that had the same care been taken with other exhibits in packing, &c., not a quarter of the time would have been taken in arranging. Mr. Woodley not only sent his honey (comb and in bottle), but he sent bunches of flowers, vases to put them in, a plan elaborately drawn to show how the honey should be staged, and everything was there to carry out the details. Very handsome indeed did this display look.

Then we came to the classes for the largest quantity from a single hive. Mr. Godman scored 1st with over 100 pounds; Lord Sudeley 2nd with 74 pounds; and Mr. McNally 3rd with 24 pounds.

These weights are very creditable for such a year as the present. Lord Sudeley's bee manager, Mr. John White, is, we believe, a Fifeshire man, and this perhaps accounts for the great interest he has taken in sending so far north.

Here the large honey classes end, though we ought not to omit that Mr. Thorne had a great lot of fine honey which arrived too late for the judging, which was much to be regretted, as he did so well at Plymouth, and would probably have been a prize-taker here.

The twelve 1-lb. section classes were fairly filled, Mr. W. Woodley here again taking the highest award.

In the six 1-lb. or any other sized section Mr. Tom Sells took an easy 1st with six 2-lb. sections of fine colour and finish.

In the ten 1-lb. bottle class the 1st prize was taken by Mr. Buller, and 2nd by Mr. Green, both of Welwyn.

In the class for supers of honey Mr. Pringle got 1st with a fair Stewarton hive, though very closely run by Mr. Woodley with a very pretty small glass of sainfoin honey.

Beeswax prizes went to Mrs. Steele (1st) and Mr. T. B. Blow (2nd).

Mr. McNally took 1st for a display of honey biscuits and liqueurs.

Mr. Woodley, 1st for mead, which was of very fine flavour, and remarkably clear and bright.

The prize for honey cake was deservedly awarded to Mrs. Steele, for better cake we never tasted.

Hives were there in force, but all by one exhibitor, Mr. R. Steele; every kind that could possibly be needed were there on view, and all nicely furnished.

For patent grooved sections Mr. T. B. Blow was awarded 1st prize; also 1st prize for enamelled metal and card section cases.

The Judges were Mr. Jas. Lorrimer, of Dundee, and Mr. Stewart, of Arbroath. Mr. Blow undertook the bee-tent work for the whole time of the Show. Altogether, what was prophesied as likely to be quite a failure, has turned out to be about as successful a show as has been held this year.

Appended is the complete Prize List:—

Best display of comb and extracted honey.—1st, W. Woodley; 2nd, A. Godman: 3rd, Lord Sudeley.

Best display of honey from one hive.—1st, A. Godman; 2nd, Lord Sudeley; 3rd, J. McNally.

Best twelve one-pound sections.—1st, W. Woodley; 2nd, Lord Sudeley: 3rd, A. Godman.

Best six sections, any size.—1st, T. Sells; 2nd, G. Green; 3rd, W. Woodley.

Best display of extracted honey not exceeding thirty pounds.—1st, A. Godman.

Best ten one-pound jars extracted honey.—No entries.

Best ten one-pound jars heather honey.—1st, G. T. Buller; 2nd, Geo. Green.

Best super of honey.—1st, A. Pringle; 2nd, W. Woodley.

Best observatory hive stocked with bees and their queen.—1st, A. Godman; 2nd, J. Johnston.

Best two samples of beeswax.—1st, Mrs. Steele; 2nd, T. B. Blow.

Best collection of honey and pollen-producing flowers.—1st, J. McNally; 2nd, W. Badcock.

Best original exhibit calculated to be of general utility to bee-keepers.—1st, T. B. Blow; 2nd, Mr. Lowth.

The most interesting exhibit connected with bee-keeping.—1st, T. B. Blow.

Best collection of honey-flavoured articles as food and liqueurs.—1st, J. McNally.

Special prizes (open to ladies only).

Best mead or beer made with honey.—1st, Mrs. Woodley.

Best honey-flavoured cake.—1st, Mrs. Steele.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual Show of the above County Association was held in connexion with the Leicester Agricultural Society at Leicester on July 30th and 31st. Without any pretensions to being a big show it was a very creditable one, bearing in mind the season. The L.B.K.A. devote the main share of their prizes to the honey, only two classes being reserved for hives, and in these Messrs. W. P. Meadows and C. Redshaw ran each other very closely, both exhibiting good hives of their respective types. In the class for hives, price not to exceed 10*s.* 6*d.*, Mr. Meadows was first and Mr. Redshaw second; but in the class for best hive, price not stated, the positions were reversed, mainly owing to some slight defects in workmanship, easily remedied, but impossible to be overlooked in judging. There was no class for 'collection of appliances,' but both the gentlemen named staged collections, not for competition, but which added considerably to the completeness of the display.

We might say, 'Lucky Leicester!' when dealers will send collections of bee-goods without the chance of a prize, and other Associations cannot draw them with prizes beginning at 5*l.*!

The class for best stock of bees in observatory hives stocked with bees brought five exhibits, first prize going to a capital colony of Carniolans on fourteen frames, with a very fine queen at its head. What would have been second prize had to be content with an 'H. C.,' owing to the hive in which they were shown being so constructed as to render the finding of the queen extremely difficult.

In the honey classes some very good sections, for the season, were shown, Mr. Meadows and the Rev. M. A. Thompson each staging nice sections, good in colour, flavour, and sealing.

The full Prize List is as follows:—

Best observatory hive.—1st, J. Cooper: 2nd, C. Redshaw; highly commended, H. M. Riley.

Best frame hive, price 10*s.* 6*d.*—1st, W. P. Meadows; 2nd, C. Redshaw.

Best hive for general use.—1st, C. Redshaw; 2nd, W. P. Meadows.

Best section honey, not to exceed 50 lbs.—1st, M. A. Thompson; 3rd, T. Ingram (2nd not awarded).

Best display of run or extracted honey in 1-lb. jars, not to exceed 50 lbs.—1st, Rev. M. A. Thompson; 2nd, W. P. Meadows; 3rd, J. Cooper.

Best 12-lb. sections.—1st, W. P. Meadows; 2nd, ditto.

Best twelve 1-lb. jars run or extracted honey.—1st, W. P. Meadows; 2nd, ditto.

BANBRIDGE HONEY AND BEE SHOW.

The show of honey and bees at Banbridge, co. Down, on the 29th July, was, considering the bad season, surprisingly good. As many as thirty exhibits were staged, most of which were in very creditable condition. The prizes awarded were as follows:—

Best stock or specimen of bees, to be exhibited with their queen in an observatory hive.—1, Wm. Morrow, Kenlis Street, Banbridge.

Best six 1-lb. sections.—1, David W. Shaw, Anahilt, Hillsborough; 2, Samuel Hill, Solitude House, Banbridge; 3, James Thompson, Drumiller, Dromore.

Six glass jars of extracted honey, not less than 1 lb. each.—1, J. M'Cabe, Kilkinamurray, Katesbridge; 2, W. G. W. Flynn, Lawrencetown; 3, Wm. J. Davidson, Lawrencetown.

Special Prizes, presented by the Ulster Bee-keepers' Association. Open to Members of Ulster Bee-keepers' Association and subscribers to the Banbridge Farming Society:—

Stock or specimen of bees, to be exhibited with their queen in an observatory hive.—1, Samuel Hill, Solitude House, Banbridge; 2, Wm. Morrow, Kenlis Street.

Six 1-lb. sections (full weight).—1, D. W. Shaw, Anahilt, Hillsborough; 2, Wm. Morrow, Kenlis Street, Banbridge; 3, Samuel Hill.

Six glass jars of extracted or run honey, not less than 1 lb. each.—1, William J. Davidson, Lawrencetown; 2, Isaiah J. M'Cabe, Kilkinamurray, Katesbridge; 3, W. & J. Tufft, Drumgold, Moy.

Ornamental design in comb honey.—Samuel Hill.

Bar-frame hive, with facilities for harvesting honey and wintering bees complete, with section crate, cover, and stand.—1, William Henry, Jerritzpass; 2, Wm. Morrow.

The judges were the Rev. H. W. Lett, Aghaderg Glebe, Loughbrickland, and Mr. Paul M'Henry, Ballyskeagh, Dunmurry, the former a Vice-President and the latter Hon. Secretary of the Ulster Bee-keepers' Association.

REVIEW OF GERMAN BEE JOURNALS.

By F. Dennler.

Leipziger Bienenzeitung. 1890. No. 3.—'Is Dysentery a Disease of Bees?'—The dissecting knife and the microscope, Pastor Schönfeld tells us, will furnish a reply to this question. A careful examination of the mucous membrane of the intestinal canal of bees at the commencement of the disease shows this membrane to be in a soft and swollen condition, tearing very easily. When the disease has made some progress the mucous membrane is found to be in an exceedingly spongy and almost fluid state, and when this is the case the muscular tissue overlying the mucous membrane is also found to be greatly affected: so much so, that an attempt to withdraw the entire intestinal canal uninjured through the anus, easily accomplished with bees in good health, hardly ever proves successful. Finally, when the disease has reached its climax, the sphincter muscle of the anus becomes flaccid and paralysed, the consequence being that the excretions are either discharged involuntarily, or, if convulsive contractions of this muscle set in, defæcation cannot take place at all, and the bee dies in convulsions. This would prove dysentery to be a catarrhal inflammation of the mucous membrane of the intestines, leading to collapse and paralysis of the overlying muscular tissue. If the intestinal canal extracted from the abdomen of bees is treated with water and caustic ammonia, or allowed to soak for some time in dilute alcohol, its diseased state will unquestionably reveal itself under the microscope. The same result is shown by a careful examination of the excretions, which are quite different from those of healthy bees. If dysentery has been caused by improper food, or in consequence of bad or putrid honey having been supplied for their feeding—in which case the disease very frequently appears at the commencement of the winter—the evacuations are very watery, having an offensive odour and being in a state of putrid fermentation, and in addition to a very considerable percentage of uric acid, contain a large number of cryptococci and entire undigested pollen grains. On the other hand, if dysentery is caused by a chill, then the cryptococci are absent, but undigested pollen grains are present in still larger quantity. In each case a careful microscopic examination will clearly show that dysentery in reality is a disease of bees.

Bienenwirtschaftliches Centralblatt. 1890. No. 1.—This number contains a biography, with portrait, of the late Pastor Wilhelm Rouvel, founder of the Märkish Central Bee-keepers' Association, born on 25th August, 1812, and died on 23rd August, 1875. The same number contains an extract from the Report of the Chamber of Commerce of Hanover for the year 1888, by which it appears that the average wholesale price paid for honey in the comb during the year was 75 pf. (equal to 8*d.* per pound English); the retail price being 1 m. per pound for honey-comb, 60 pf. for run honey, 40 pf. for extracted honey in casks, 42 to 45 pf. for honey for feeding purposes, 58 m. per 100 pounds German for superior honey-comb in original straw hives, and 1 m. 15 pf. to 1 m. 18 pf. per pound for wax.

No. 2.—In this number there is an article by Dr. Klamann, under the heading of 'The Yellow Foul-brood Bacillus (*Bacillus flavidus alvei*).' Dr. Klamann having made a thorough investigation of this bacillus, and more particularly as to its botanical character, his description will doubtless also be of interest to the readers of the *British Bee Journal*, the more so as the *Bacillus flavidus alvei* appears to be an enemy of bees and their brood, although not so dangerous as the *Bacillus alvei* discovered by Mr. Cheshire, which is capable of destroying whole colonies of bees. Dr. Klamann gives the following description of the *Bacillus flavidus alvei*:—

'*Locality.*—In larvæ infected by foul brood.

'*Shape and Structure.*—In the pupæ it appears as thick and elongated oval-shaped rods, which, when cultivated, become thinner and longer, and assume the form of curved threads. Size of the bacillus in the pupa:—Length, 1·4 micromillimetre. One micromillimetre = $\frac{1}{1000}$ millimetre = $\frac{1}{25000}$ inch. Width, 0·88 mm., in colonies growing to a length of 2·1 to 2·88 mm. The matter in which these bacilli are cultivated emits an unpleasant odour.

'*Movements.*—Very lively.

'*Reaction.*—Acid.

'*Growth.*—(*a*) *On plates.* Grows in the form of yellowish round or oval colonies, which, on

growing older, rise in the shape of yellowish-brownish protuberances above the gelatine.

'(*b*) *In "stichculturen"* it grows rapidly, forming deposits around the "*stich*" of a thick granular nature, delicately interlaced with one another, and having an indented edge, turning whitish-grey at first, and yellow afterwards. The surrounding gelatine becomes turbid, and after many weeks the whole changes into a dirty-looking yellowish mass.

'*On Agar-Agar Jelly.*—At the commencement a whitish mucous substance appears, which afterwards becomes yellowish and has a strong odour.

'*On potatoes* in brownish granular deposits.

'*On serum of blood* in greenish colonies, changing gradually to yellowish, as on Agar-Agar jelly. Oval-shaped bacilli are developed as in the pupæ.

'*Temperature.*—The bacillus grows well at a temperature of between 15° to 20° R (65¾° to 77° F.

'*Rate of Development.*—Grows rapidly.

'*Formation of Spores* takes place by the thickening of the ends of the rods.

'*Action on Gelatine.*—The gelatine gradually becomes liquefied if evaporation be prevented.

'*Action on Aniline Colours.*—Gentian blue gives it a good colour; the poles of the rods particularly are acted upon by a moderate application of the colouring matter. Methyl-violet produces a bad colour. By Gram's method of colouring (by iodine) some specimens are well coloured, others badly.

'*Determination of Pathogenity.*—Bluebottles and house-flies which were fed with a mixture of this bacterium and honey very soon died. They became enfeebled, staggered in crawling along, fell down, and remained on the ground as if paralysed until they died. Bluebottle larvæ when fed with this bacillus did not die. With wasps the same feeding gave different results. Some of the wasps died shortly after partaking of the food, while others remained alive. Two white mice had some bacilli emulsion ejected under their skin and remained alive. Individual drones died quickly. Three workers fed on bacilli emulsion with honey expired at the end of three days. Their dead bodies, a few days after, developed the distinct smell of bees infected with foul brood. Their bodies were hollow; inside, a sticky brownish substance was found attached to the walls of the rings of the abdomen, which, when examined under the microscope, showed a large number of bacteria, identical in form to the schizomycetes in question.

'When placed on the gelatine plate I again obtained from this sticky mass beautiful specimens of the yellow foul-brood bacillus, but was unable to detect bacilli of any other kind on the plate. Nine worker-bees, all very lively, were fed with bacilli emulsion freshly prepared. In the course of the next two days two of them died after being fed but once; in three days six more were dead, one bee only remaining alive and still nimble, having probably eaten but few of the bacilli. But after swallowing a small portion of bacilli emulsion, administered on the point of a platinum needle, it died on the following day—the symptoms of the disease of these bees being the following:—

'Their movements became more sluggish; the joyful humming ceased; the sounds from time to time emitted were of a plaintive nature, the suffering insects remaining for a long time in one place without moving. When touched they tried to move, but fell down. Their legs became paralysed, the first pair of legs being the first to lose completely the power of motion, the abdomen retaining this power longest. The insects, when very ill, mostly rested on one side of the body. The abdomen of the dead bees did not shrink, but remained full and round as in bees infected with foul brood when taken out of the comb. Generally the abdomen shrinks soon after death, beginning from the side of the belly.

'In the dead bodies I found fungus threads 12, 8–20, 2 m.mm. in length. A very offensive smell was also emitted from the bodies soon after death.

'The symptoms of the disease which I was able to observe in flies were also apparent in bees, and it is not difficult to imagine that in the delicate bodies of the pupæ such a fungus is capable of causing more mischief than in grown-up, vigorous bees.

'On the whole, then, I think I may assume that I have determined the pathogenic character of this second foul-brood bacillus.'

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 1st page of Advertisements.)*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

CAUGHT IN THE ACT—BIRDS AND BEES.

[286.] I made a discovery the other day, and that is, that enclosed birds are great bee-eaters. I should feel greatly obliged if you will give the name and a short history of this bird; it regularly visits my garden each year in the spring and brings up its brood, and then I see no more of it till the following spring again. On Saturday, the 19th July, I was passing my hives and saw this bird flying through my bees in a way

that aroused my suspicions, and so next day I thought I would watch its little game, and I found that the two old birds had parted, and each one had two of the four young ones which they looked after, and I found that both the old birds fed their young mostly on bees: they not only caught the bees at the hives, but while passing through the air at a good distance from the hives, and would also catch them while passing from flower to flower. I felt in quite a way to think I had been a friend to such scamps so long! The old bird I enclose was in the act of eating a bee when I shot it (a bit of the bee is still on its bill, just as I picked it up), and the other is one of the young ones in its charge. This bird nearly always takes its food while on the wing. So if you can give some account of it, it may be interesting to other bee-keepers as well as myself.—T. PRITCHARD, *Bucknell Station, Salop.*

[We sent the birds to a well-known bee-keeper who is also a skilled ornithologist, and has devoted much time to the study of birds supposed to be the enemies of bees. His reply is as follows:—'The bird received is the Spotted Fly-catcher (*Muscicapa grisola*). There is no doubt that it does sometimes take bees, but there is not the slightest ground for your correspondent's fears. Their principal food consists of moths and flies. I thoroughly sifted this matter some years ago, and never now allow one to be killed in our apiary; indeed, we have some six to eight nests every year built in the apiary. Your birds were delivered to me while working among the bees, and when I looked at the poor dead little fellows I was very troubled, and looking round the place counted at least a dozen seated very quietly about, and scarcely taking the trouble to fly away as I went in their direction. They evidently seem to have the feeling they have a friend in me, which they certainly have. I positively have never yet seen them take a bee myself.'—EDS.]

SPEED OF BEES IN FLIGHT.

[287.] I have taken the following from a publication of last week. It is a very interesting subject, but the account of the experiment is hazy. Can any bee-keeper throw more light on it? Or is it possible that some practical joker has perpetrated a fraud on an unwary editor?

'*Speed of Wasps and Bees.*—A writer in a Scotch paper says that he has sprinkled individual wasps and bees with rose-coloured powder, and has found that thus handicapped they could with ease keep up with the fastest trains when speeding down "Shap Summit," the steepest gradient in the country. Nor were these carried along in the rush of air caused by the train. They would come in and out of the window, sometimes disappearing for a minute or more, but frequently returning again and again. At distances of from five to ten miles they dropped behind, when others took their place.'

I have seen a common humble-bee fly right through the compartment of a train which was going at thirty miles an hour. It came right on from the field, and, without touching anything, in at one window and out at the other.—H. W. L.

A GOOD REPORT.

[288.] A bee-keeper in this neighbourhood has met with some success this season considering the weather we have been having, as the following particulars will show, viz.:—(1) From one hive, June 2nd, 12 lbs.; 18th, 14 lbs.; 24th, 17 lbs. July 2nd, 12 lbs.; 14th, 8 lbs.; 25th, 18 lbs.; total, 81 lbs., all extracted honey. Another hive (artificial swarm of May 16th) yielded twenty-three two-pound sections by July 28th. Surely this is not bad?—T. B. BLOW, *Welwyn, Herts.*

APPLIANCE DEALERS: HEAR BOTH SIDES.

[289.] A good deal has been said lately about the shortcomings of appliance dealers. Now, sir, if you will allow me, I should like to say a word on the other side. I have dealt with several of those gentlemen for some long time, buying my first Ligurian queen of Mr. Neighbour in 1867, since when I have had several dealings with him. With Messrs. Abbott I began in 1874. Also Mr. Blow, Mr. Green, Mr. Webster, Mr. Overton, and others, all of whom I have found in every case most prompt. I should like to take those grumblers back to the time when we had to make our own hives and fixtures. I don't think they would say the former times were better than these.—WALTER HEWSON, *Wickhambreaux, Kent.*

A BEE-KEEPERS' ASSOCIATION FOR DURHAM.

[290.] Very glad to see that Mr. Pallister has (in *Journal*, p. 357, and letter 157) once again brought the above subject before the readers of your valuable paper, and I hope it may catch the eye of some one able to take the matter up; possibly the worthy rector of Kirk Merrington, if he has the time to spare, might initiate and form a B. K. A. for this county, as there are now a very great number of bees kept, and nearly all on the humane system. In the meantime, I dare say the Secretary of the B. B. K. A., Mr. J. Huckle, would furnish any information; so that now it has come to the front, we, the bee-keepers in Durham, will see the advantages and assistance to be obtained by bee-keepers' associations, and do our utmost to get one formed with as many members as possible.—J. B.

BEEHIVE INSPECTION AT TREDELERCH, RUMNEY.

[291]. I was somewhat surprised, one morning about three weeks ago, to receive an invitation from Mr. Lascelles Carr to assist in the inspection of his hives, which inspection took place on Wednesday, the 23rd ult. Mr. Carr, with his usual generosity, had sent an invitation to several members of the Bee-keepers' Association as well as to the residents of Rumney to be present on the occasion, and about 120 ladies

and gentlemen took advantage of Mr. Carr's kind invite in order to become acquainted with the modern methods of bee-keeping. Any one less enthusiastic than Mr. Carr would have said, 'We can make but a poor show this year, as the bees are nearly starving.' But he was not to be deterred, and with the assistance of the fine weather which was experienced the week before the inspection took place, the exhibition proved a great success. On reaching Tredelerch on the morning of the inspection, I found all the arrangements completed. Newly painted hives of various patterns had been arranged on the lawn, together with frames, sections, feeding bottles, and section racks. The good host had also not forgotten to provide for the large number he had gathered around him, for on the lawn had been erected a tent, in which the genial lady of the house and the Misses Carr dispensed refreshments. The Hungarian Band was also present, and enlivened the proceedings with several selections from their *répertoire*. The inspection commenced with the transfer of a swarm of bees from an old straw skep into a new bar-framed hive. The question was, could we succeed in persuading the bees that it was a festive day, and not one for using the lance? A great many of those present looked as if they thought not. However, I turned over the skep into the middle of the lawn, and drove the bees. I afterwards tied the combs in the frames and threw the bees on the combs. Those who were brave enough then paid a visit to Mr. Carr's hives without veils, and I took a rack of sections off in various stages of completion, which were carried to the lawn, when those present had an opportunity of contrasting the difference between section honey and the honey from the crown of the skep. I then endeavoured to enlighten the visitors on the modern and more humane methods of bee-keeping, after which the band struck up some dance music, and we then witnessed the prettiest scene of the day, viz., about a dozen couples dancing around the hive into which the bees had been transferred. Before the company dispersed a hearty vote of thanks was accorded to Mr. and Mrs. Carr by Mr. Williams (a member of the Bee-keepers' Association) and seconded by Mr. Badcock (schoolmaster), on behalf of the residents of Rumney. Mr. Carr, in responding, said he would be exceedingly pleased to give all the assistance he could to his fellow villagers in the modern and more scientific methods of bee-keeping, and after three hearty cheers the company dispersed.—W. Gay, *Expert, Glamorganshire B.K.A.*

APPLIANCE DEALERS.

[292.] In justice to the above, and in reply to 277 (p. 355), kindly credit the following:—On Monday, 21st ult., I sent cash with order for foundation to Bromley, Kent; on Thursday it was received and transferred to the hives in Bangor, N.W., a distance of 250 miles, which speaks well for the dealer's warehouse staff.—Cymry am Byth.

AN EVENING SWARM.

[293.] On the evening of the 24th July, at 7 p.m., while Mr. John Lewis, of Darren, near Aberystwith, was leisurely watching his father's bees, he noticed the queen perambulating on the floor-board, and presently entering the hive, which shortly showed signs of great activity, arousing the father's and son's suspicion that some unusual occurrence was about to happen, and that they had better devote their evening to ascertaining the cause of this extraordinary commotion.

They had not long to wait to be satisfied that the bees were bent upon swarming, and within a quarter of an hour they were well clustered upon a hawthorn bush in the garden, and safely hived before eight o'clock. They have since worked with a will, and drawn out half-a-dozen frames. The location is at an altitude of 500 feet above sea-level, and it affords me much pleasure to help several artisans to study apiculture in these rural districts, who are rapidly realising the profit derivable from bees, as well as the pleasure attendant upon their study.—T. W. Powell, *Aberystwith.*

BEES AND FRUIT-GROWERS.

There is no doubt that if fruit-growers kept more bees there would be heavier crops of good fruit in many an orchard. Bees have a deal to do with the fruit crop, as in searching for honey they convey the pollen from one flower to another, and thereby effect the process of fertilisation. Trees, formerly regarded as barren, have been known to produce good crops of fruit after the introduction of bees in the orchard—*Barrow News.*

[If country newspapers and those specially devoted to agriculture would occasionally give a little prominence to such paragraphs as the above, it would tend to the advantage of fruit-culture as well as of bee-culture; the majority of persons dwelling in the country being in a condition of woeful ignorance regarding the assistance given by bees in increasing crops of fruit where they are kept in numbers.—Eds.]

BEE SHOWS TO COME.

Bees, Hives, Honey, etc.

August 6-7-8.—Yorkshire Agricultural Society's fifty-third Annual Show at Harrogate. Prizes for bees, honey, and appliances. For entry forms apply Marshall Stephenson, Sec., York.

August 8-9.—Bramhall and Woodford Horticultural Society. 8*l.* 10*s.* and silver medal in prizes for honey, open to Lancashire and Cheshire only. Entries close July 26th. Lists from W. Slater, Rose Cottage, Bramhall, near Stockport.

August 14.—Goole and District Bee-keepers' Association. Show of flowers, vegetables, and

honey. Entries close August 5th. Particulars of A. Woodhead, Edinburgh Street, Goole.

August 20-21.—Shropshire B.K. Association. Annual exhibition of bees, honey, hives, and appliances, The Quarry, Shrewsbury. For prize lists apply to Miss M. E. Eyton, Hon. Sec., Wrockwardine, Wellington.

August 27.—Exhibition of hives, bees, honey, &c., in connexion with the Lancaster Agricultural Society. Prize lists and entry forms from W. Liddell, Dale Street, Lancaster. Entries close August 6th.

September 3-4.—Lancashire and Cheshire B.K.A., in connexion with the Wirral Agricultural Society's Annual Show at Birkenhead. Nearly 30*l.* value offered in prizes. For schedules, &c., apply Sec. Wirral Agricultural Society, Birkenhead. Entries close August 15.

September 3-4-5.—West Cumberland B.K.A. first annual show of bees, hives, honey, window plants, &c., at Harrington. Forty classes and over a hundred prizes. For lists apply E. McNally, Sec., Harrington.

September 19.—Wigtownshire Apiarian Association. Eighth Annual Show at Stranraer. 12*l.* in prizes for honey. J. Balfour Robertson, Hon. Sec., the Manse of Leswalt. Entries close September 2.

Queries and Replies.

[169.] *Queens and their Ways.*—Queens this season are guilty of freaks altogether beyond my comprehension. 1. On July 3rd I made an artificial swarm for a friend who had only one hive and wanted increase. I divided the ten frames pretty equally, and set the swarm about ten feet from the stock. On the 10th (in seven days) I found the queen in the swarm's hive, and frames full of eggs and young brood. In the old stock was a queen-cell not much more than half-formed with an inmate grub. This seemed all right. But, presto! on the 15th inst. the queen-cell is being torn down, as is not unusual after occupation, and a queen is in the hive. Had she been hatched, or had she come back from the swarm? She did not seem quite so large as the old one of five days before, but was a fine one; so I went to examine the swarm. There I could not find her majesty, nor were there any eggs, but plenty of young brood, and plenty of queen-cells about ten days old (I opened one) and less. 2. Now for another case. On the 11th inst. I found a small queen in a hive (No. 3 'Echo,' p. 335, *B.B.J.*) that had thrown a swarm on June 9th. As she had laid no eggs and was small I made a grab at her to destroy her, but she was too quick for me. The frame was heavily covered with bees, and I could not find her again. (Please note that the frame was held three feet or so from the hive.) So I took the frame away behind a shed, and cautiously shook all the bees off a few at a time on to a sheet, but could not find her. Still I felt satisfied that she was done for, and must be lost even if she had flown during the shaking. I then gave eggs from another hive. On the 15th I took a sealed queen-cell from the hive before mentioned, with great precautions in the way of cotton wool and warm flannel, from Bristol to Mangotsfield to supersede the new queen-cells which I expected were formed. But my providence was not required. A good batch of eggs were comfortably stowed away in the centre of one worker comb, and on the last frame examined (the one nearest the opening) there was her ladyship in all the glory of increased proportions, though not yet of imposing appearance. How did she get in? These instances seem to show that queens utilise their powers of flight much more than is generally supposed, unless in the first case it was an example of quick work in raising a queen. I can't understand it, but I hope you can.—S. Jordan, *Bristol.*

Reply.—1. There is nothing out of order in the case described. A queen was hatched in the old hive, and the date is in accordance with the usual time occupied in the metamorphosis of a queen-bee from the egg to the perfect insect. Selecting a grub one day old, hatched from an egg laid four days previously, the young queen would be fully matured on the 15th. 2. The young queen in the second case has again been 'too quick for you.' They are usually very shy, and not so easy to find as are adult fertile queens. May we offer a kindly word of caution on your bee-work in future? For instance, (*a*) when making artificial swarms, leave the queen on the *old stand;* (*b*) when manipulating frames to search for queens, hold the frame over the open hive, not 'three feet away,' so that if a young queen, in her hurry to get out of sight, drops off the frame, she may fall into the hive, and not be lost by falling on the ground, as many are.

[170.] *Driving Bees.*—1. When is the best time of the year to drive bees? 2. What part of the day is best? 3. Is there a time when there is no brood in when they can be driven?—A Constant Reader.

Reply.—1. If taking honey from skeps, early autumn is the best time. If after swarming, it should be done twenty-one days after the issue of the swarm. 2. Any time will do between noon and 6 p.m., but the latter time for preference. 3. Twenty-one days after swarming the hive is broodless.

[171.] *Driving and Uniting.*—1. I have some boxes and straw skeps stocked with bees in my garden; and wishing to do away with skeps and form one strong box (which I intend feeding), can I, without loss in number, drive the bees from two or three of the skeps, amalgamate and

put them into an empty box in same garden without danger of the bees returning to their former stand, and so being lost; or will they remain all right in box? 2. What is the best time of the year for performing such an operation, now or later on?—OMAGH.

REPLY.—1. Yes. The driving and uniting will cause the bees to mark the new location, and very few will fail to return to it; at the same time, if convenient, we would—pending the time for driving—bring the skeps into as close proximity as possible. 2. About the end of August is a good time.

[172.] *Foul Brood.*—I have lost some seventeen hives of bees, all having the brood as enclosed, and being reduced to only three—these also having it—I am anxious to save them, if possible. Will you kindly let me know in your next issue what is a cure and preventative?—W. H. A.

REPLY.—The comb sent is affected with foul brood, but we cannot consider it at all of a malignant type. It is evidently of old standing, and has the appearance of having been neglected or left to itself. We must refer you to last week's *Journal* for information likely to assist you.

[173.] *Dividing Stocks and Re-queening.*—Like 'G. J. G.,' I have some six or seven double stocks, which I intended on the first appearance of fine weather to divide (?), and have been startled by your reply to query (154), last issue, for I also proposed re-queening twelve or fourteen stocks. Drones are plentiful, and there is a little surplus honey in all my hives, which I purpose leaving. My intention was to divide my *best* stock, putting in some frames of honey among the brood. Then, from ten to fourteen days after, divide the others, giving queen cells from the first. Please say, under the circumstances, would you approve of this plan, and, if possible, let me have your reply in next issue; in the meanwhile I shall prepare by dividing No. 1, as time presses.—T. B. O'BRYEN.

REPLY.—We hope that *as a rule* readers will this season follow the advice given in reply to query No. 154. There may be districts where drones are in normal condition and plentiful, but we know of numerous places where they are nearly all killed off; the few which remain being worried and cowed to an extent which makes mating of queens still to be reared a very risky affair indeed. Only those on the spot can judge *safely*, but our own opinion is that queens hatched out in mid-August this year are not likely to be fertilised.

[174.] *Feeding in Order to Complete Sections.*—I have seventeen stocks of bees in frame hives; most of them have one or more crates of sections on. Nearly all are partially filled, and a few partly sealed. 1. Would it do to feed the bees on top of sections with *extracted honey*, so as to get them to finish sections? Or would they only use the honey and not finish sections. 2. Why do the bees get in large clusters on the division-board and in any other available space, and neither work nor swarm?—DOUGLAS STRAIN, *Maghnavery.*

REPLY.—1. There can be no objection to your bees completing the sections as proposed; the difficulty is in getting the bees to do as you wish. We have had sections completed by giving a dozen or so of half-filled ones placed on the floor-board between hive and outer case, but only few hives possess this convenience. If a few combed sections are partly filled with the extracted honey you might try placing a few of them on the flight-board after 8 p.m. each night, and removing them early next morning; meantime watch if sealing in sections above is progressing. If your hives are on the combination principle the partly filled sections may be placed behind the dummy and the bees allowed to pass under it.

Echoes from the Hives.

Bridgnorth, South Shropshire, July 22nd, 1890.—As you have not had an 'echo' from this district since last November, I send you a brief report. Bees in this neighbourhood wintered well, losses being very few indeed, and they came out in spring strong in stores and numbers. The beans, raspberry, gooseberry, currant, apple, and hawthorn were well worked, and yielded a fair return in the early summer, the first-named more particularly. Swarms, despite efforts to prevent them, came off very freely in June, and from the end of that 'merry' month dates a most depressing season. Dull, cold, rainy weather has been the rule during the past three weeks, and for four or five days in succession bees were not able to venture out. At noonday the thermometer registered 52° only, and this for days together, while, worse still, the midsummer nights were colder at times than those of early spring or late autumn. The pastures hereabouts were, and still are, white with clover, but the low temperature effectually prevented the secretion of nectar, and I have regretfully observed many an acre of glorious bloom untouched by *Apis mellifica*. The unusually early massacre of drones has been general, and so persistently has it been carried out that I should think but few, comparatively, survive. To-day is a real summer's day at last (85° in the sun this morning), and our favourites are busy on the limes and blackberry: but the 'good time,' if it prove such, is rather too late for much surplus to be stored.—J. EDMUND RODEN.

NOTICE.—We would ask our correspondents to take notice of the removal of our office, and to request them in future to address all communications relating to the literary department, &c., to 'The Editor of the "BRITISH BEE JOURNAL," 17 *King William Street, Strand, London, W.C.*'

West Cumberland Bee-keepers' Association, 1890.

FIRST EXHIBITION, to be held at HARRINGTON, September 3rd, 4th, & 5th. PRIZES to the value of £25 are offered for HONEY, HIVES, BEES, FLOWERS, &c.

Special Classes for Ladies, and Boys and Girls.

Entries close on August 23rd.

For Prize List, &c., apply to EBENEZER McNALLY, *Secretary*, HARRINGTON, CUMBERLAND.

SHROPSHIRE Bee-keepers' Association.

The Annual Exhibition of Bees, Honey, Hives, and Appliances,

Will be held in THE QUARRY, SHREWSBURY, in conjunction with the HORTICULTURAL SOCIETY'S GREAT FETE, On Wednesday and Thursday, Aug. 20th & 21st.

PRIZES to the Value of £35 will be awarded.

For Prize Lists, Entry Forms, and Information, apply to Miss MARY E. EYTON, *Hon. Secretary*, Wrockwardine, Wellington, Shropshire.

ON HIRE.

BEE-TENT. For Terms apply to A. J. BROWN, Hon. Sec., Wotton-under-Edge District B. K. A. 227

Yorkshire Agricultural Society.

GREAT SHOW AT HARROGATE,

WEDNESDAY, THURSDAY, and FRIDAY August 6th, 7th, and 8th, 1890.

Magnificent Exhibition of Horses, Cattle, Sheep, Pigs, Implements, Shoeing-Smiths' Competitions, Butter, Hives, Honey, and Dairying.

ADMISSION.

Wednesday,	9 a.m. to 6 p.m.	Half-a-Crown.
,,	6 p.m. to 8 p.m.	One Shilling.
Thursday,	8 a.m. to 8 p.m.	One Shilling.
Friday,	8 a.m. to 5 p.m.	One Shilling.

Season Tickets, Half-a-Guinea each.

MARSHALL STEPHENSON, *Secretary*.
YORK, July 26th, 1890. 3583

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THE MANAGEMENT OF STRAW SKEPS. Designed to teach the Cottager how to obtain the best results at the least possible cost. Price 1*d*. Ditto in Welsh, 1*d*.

WINTERING BEES. By THOMAS W. COWAN. The most complete work on the subject of Wintering published. Third Edition. Price 3*d*.

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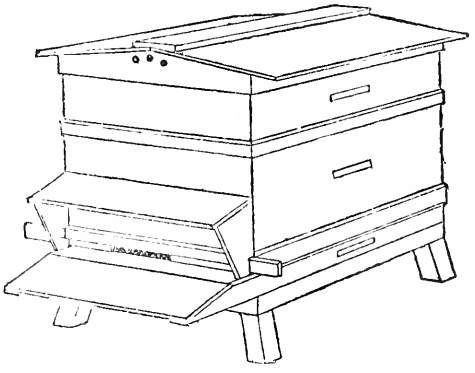
CHARLES T. OVERTON.

I BEG to inform Bee-keepers that I am still holding a Large Stock of AMERICAN SECTIONS of all Sizes, and all Orders can be immediately executed.



ROCHESTER SHOW.

OVERTON'S W. B. C. HIVE,

Price **15/-**, takes First Prize.

OVERTON'S ROCHESTER COTTAGE HIVE.

Price **9/6**, also gained First Prize.

These Hives are fitted with the Latest Improvements, and are most suited for General Use in Large and Small Apiaries.

FINE HOME-BRED QUEENS, 5s. each.

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THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

No. 425. Vol. XVIII. N.S. 33.] AUGUST 14, 1890. [*Published Weekly.*

Editorial, Notices, &c.

USEFUL HINTS.

Weather.—There has been little cause for complaint against the weather since our last 'Hints' appeared; if honey has not been stored in any great quantity, at least something has been done to make stocks safe for the present. Some reports of an encouraging kind have reached us, but not quite so many as we hoped to see, and there will now only remain a forlorn hope of some further income from second-crop clover and blackberry bloom. *Apropos* of our observations on honeyless white clover last week, it would seem we are not alone in feeling the peculiar effects of the present season. The *American Bee Journal* just to hand has a communication headed 'No Honey in White Clover,' in which the writer, after declaring the honey season to be a failure, says:—'All this took place amidst a sea of white clover, too. I never saw so much white clover before in my life!'

It is certainly a remarkable experience of what is justly called the 'queen' of honey-producing flowers when on two continents, 3000 miles apart, the same absence of nectar in clover bloom occurs. How far the recent warmth has succeeded in restoring the prestige of the plant in the eyes of British bee-keepers a few days will show. We saw bees working on it busily enough on Bank Holiday, when the clover bloom was without doubt yielding honey within ten miles of London.

Preparing for the Close of Season.—While one portion of the bee-community is busy transporting stocks to the heather-clad hills whereon grows, as we hear, the hopeful promise of a good autumn yield, we, who have nothing wherewith to redeem the lost days of a wet June, are preparing to set about our survey of the situation Within the next two—or, at most, three—weeks, all surplus chambers should be removed, and a careful survey made of the condition of every stock in the apiary. In making this examination a deliberate and thorough one, every necessary detail should be noted down, so that all the requirements needed for putting each stock into safe wintering condition are recorded, and no other inspection is required for this purpose. The less often hives are manipulated in autumn the better; it reduces robbing and other attendant evils considerably if the bees are seldom disturbed by examining combs; hence it is we wish to emphasise our advice to take 'notes' regarding the condition of each colony when it is overhauled, and arrange future operations from these notes alone.

Early Feeding-up.—The lessons taught by the autumn of '88 will not have been thrown away, and few who gained their experience at that time will put off feeding-up till the end of September this year. Late swarms and casts should be helped on at once in completing as many combs as will be needed for them to winter on: while if this work is attended to now, while strong colonies are still gathering from the fields, there is less chance of the latter attacking weaker stocks than if feeding is going on when nothing can be had outside. Rapid feeding need not be resorted to so early; but if the end of August is chosen for a start, about four pounds of syrup per week may be given to each stock through the usual bottle-feeders for two weeks, and the remainder of the required quantity as rapidly as the bees will take it after that date. No food should be given without being medicated with one or other of the remedies now being used as preventives against disease. We always medicate bee-food with salicylic acid solution, of which, for an outlay of 9*d.*, two quarts of solution may be made; and this is enough to last

a long time, as it only takes two tablespoonfuls for a dozen pounds of sugar made into syrup. At the risk of being voted old-fashioned, we also add the orthodox one ounce of salt and a tablespoonful of vinegar, stirring each of these ingredients into the syrup when it is removed from the fire.

Driven Bees.—Fewer driven stocks than usual will be available this autumn; but where small, healthy casts can be had cheap—such as are worthless for preserving as stocks—they will come in well in cases of re-queening. Care, however, must be taken that no harm befalls the queen when adding these small driven lots of bees. Unless the bees to which the latter are added are very reliable and quiet, we prefer shaking them from their combs, removing the old queen at same time, and allowing them to run into an empty skep, and into this same skep the bees of the cast are driven. The bees of both lots are then shaken well up, blending and mixing all together before throwing the lot out on a board, and allowing them to enter the frame hive together. We must offer a hint to readers who go on driving expeditions, not to take home bees without first examining the combs of the skeps from which they are driven. We know of several instances where foul brood has been carried into healthy apiaries by carelessness on this point.

Preserving Empty Combs.—Frames of clean comb and combed sections which happen to contain a little honey should be put through the extractor, and afterwards be given back to the bees for cleaning up before being packed away for use next year. One or two stocks will do all the cleaning up of a large apiary in this way, but great care is needed when any trace of disease exists. Supers with a little honey in them had best be left on suspected stocks all winter, or if removed indoors should have a good fumigating with sulphur fumes; in fact, where symptoms of foul brood are discovered all combs in use this season must be sulphured before packing away.

BRITISH BEE-KEEPERS' ASSOCIATION.

A Meeting of the Northern Counties' Affiliated Associations Committee is to be held at Shrewsbury on the 20th inst. Invitations have been issued to all the Northern Counties to send representatives. This meeting will afford an excellent opportunity for the consideration of any matters that may require to be dealt with in the course of the next year.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

This Association held its annual show and honey fair in connexion with the Abbey Park Flower Show on Tuesday, August 5th. There was a fine display of honey, although the season is far from being a good one. The prize list is as follows:—Class 1. For best exhibit of twelve jars of extracted honey.—1st, Rev. M. A. Thompson, Thistleton, Oakham; 2nd, Miss Ethel Chester, Waltham, Melton Mowbray. Class 2. For best exhibit of twelve sections.—1st, W. P. Meadows, Syston; 2nd, Mr. Parry, Ratcliffe College. Class 3. For best show, from one apiary, of this season's honey.—1st, W. P. Meadows, Syston; 2nd, Mr. Parry, Ratcliffe College. The manipulation with live bees in the bee-tent by Mr. Munday, the expert, was by far the greatest attraction. In addition, lectures on 'Bees and Bee-management' were given at intervals during the day by Mr. H. M. Riley, Hon. Sec. of the Society. Thousands collected round the tent and seemed surprised at the fearlessness with which the bees were handled without the lecturer or manipulator receiving any stings. A collection of bee-appliances was kindly exhibited by Mr. Meadows, and a glass hive with bees by Mr. J. Cooper.

GLAMORGANSHIRE B. K. A. ANNUAL SHOW.

The above show was held in connexion with the Glamorganshire Agricultural Show at Aberavon on Wednesday and Thursday, July 30th and 31st. The number of entries was in excess of any previous year, although the season has been so unfavourable, and the quantity staged was fairly good, some of it being of excellent quality and some very inferior, especially the comb honey. Mr. J. Palmer, of Ludlow, who had been engaged to do the judging and examine the candidates (of whom there were three) gave general satisfaction. Mr. Gay, the county expert, manipulated in the bee-tent, and a great deal of interest was manifested in the manipulations. The following is the prize list:—

Class 1. Best twelve one or two-pound sections of comb honey.—1st, Mrs. Price, Brecon; 2nd, Mrs. Hawkins, Ewenny Priory, Bridgend; 3rd, Miss Price, Brecon.

Class 2. Best twelve one or two-pound bottles of run honey.—1st, Mrs. Hawkins; 2nd, Mrs. Price; 3rd, Miss Price.

Class 3. Best twelve one-pound sections.—1st (silver medal), Mr. J. Muir, Margam Park; 2nd, Mr. W. H. Jenkins, Swansea.

Class 4. Best twelve one-pound bottles of extracted honey.—1st (bronze medal), Mr. E. J. Gibbins, Neath; 2nd, Mr. W. Gay, Pontypridd; 3rd. Mr. A. H. Sims, Pontypridd.

Class 5. Best bar-frame hive.—Mr. W. Gay.

Class 6. For the best exhibit of comb and run honey.—Mrs. Hawkins.

Class 7. Best exhibit of beeswax.—1st, W. H. Jenkins; 2nd, Mrs. Price.

Class 8. Best six one or two-pound sections.—1st, Mr. W. Williams, Margam; 2nd, Mr. J. Staien, Margam.

Class 9. Best six one or two-pound bottles of extracted or run honey.—1st, Mrs. Pullin, Margam; 2nd, Mr. J. Gardener, Margam; 3rd, Mr. H. Morris, Taibach.

Class 10. Best collection of honey-producing flowers.—Mrs. Staien, Margam.

NORTHAMPTONSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual Show of this Association was held at Delapra, Northampton, in connexion with the Northamptonshire Horticultural Society's Show on August 4th and 5th, and considering the very bad season we have had, a very creditable display was made.

The Rev. R. A. White, St. Giles', Northampton; Mr. J. Shaw, Moulton Park; and Mr. J. R. Truss, Ufford Heath, Stamford, very kindly undertook the duties of judging, and placed their awards as follows:—

Class I. For section honey.—1st, Mrs. F. Williams; 2nd, Mr. O. C. Hollis; 3rd, Mr. C. Cox.

Class II. Extracted honey.—1st, Mr. C. Cox; 2nd, Mr. H. Ringrose; 3rd, Mr. G. Smith; 4th and commended, Mr. W. Manning.

Class III. Best super of honey in glass or in wood and glass combined.—1st, Mr. C. Cox; 2nd, Mr. H. Ringrose.

Class IV. Best device or design in comb honey.—1st, Mr. C. Cox; 2nd, Mr. J. Pearson.

Class V. Best beeswax.—1st, Mr. H. Collins; 2nd, Mr. C. Cox.

Class VI. Open only to those who have not before taken a prize for honey.—1st, Mr. H. Williams; 2nd, Mr. T. Holmes.

Six one-pound bottles extracted honey.—1st, Mr. T. Holmes; 2nd, Mrs. F. Williams.

Special prize, a cottager's hive, value 15*s.*—Mr. C. Cox.

*** *A report of the bee department of the Yorkshire Agricultural Society's Show at Harrogate will appear in our next issue.*

INOCULATION BY BEE-STINGS.

'A Bee-keeper,' who appears to have had sufficient experience in the matter, discards the notion that the repeated inoculation of the poison from bee-stings eventually exempts the attacked from all pain when stung. 'I think,' he writes pathetically to the *Lancet*, 'that a great deal depends upon the health of the person stung, the time of the year, how the sting is extracted, and the treatment after extraction. I always suffer from stings received during the cold weather, such as early spring or late autumn; but those received during the summer months take no effect upon me. In extracting I push the sting from the wound, so as not to squeeze the poison sac, and always wash my hands after in warm water. If the number of stings received qualifies one for the privilege of exemption from pain, I think it is nearly my due.'—*Daily News.*

Correspondence.

The Editor does not hold himself responsible for the opinion expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements*).

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

AN ENCOURAGING REPORT.

[294.] Amidst the rather gloomy accounts that you are receiving of the results of the season in relation to bee-keeping, you will doubtless be glad to hear that in spite of the month of adverse weather which was generally experienced right in the middle of the honey harvest, there is, at least, one exception to what appears to be the rule of failure. I am not able to describe an extraordinary case of prosperity, except in comparison with what has been narrated by your other correspondents; but the general results which I state are interesting as showing that locality is of the greatest importance in the selection of a suitable field for bee-keeping. For my example I naturally refer to the colony of bees which has shown the best results. This was housed in one of Green's simple but to my mind admirably complete hives, the cost of which is 12*s.* 6*d.* It was supered early in the season, and later on tiered up with three racks of sections. Some weeks ago I had taken from them sixty-four sections completed, besides extracting a large quantity, and now there is one rack of sections (twenty-one) all but completed. When these are filled I may confidently say that the colony will have yielded fully one hundred pounds of super honey. From several other hives have been taken upon an average thirty pounds each, and they all are now crammed with honey, bees, and brood, presenting the most prosperous condition, and giving every encouragement to hopes for another year.

The bee-pasturage consists chiefly of sainfoin, with some little fruit-blossom, and here and there a small patch of white clover, and the wild flora indigenous to chalky soil. The situation in which the bees are kept is exposed and bleak. I think there are other bee-keepers in the neighbourhood who could give a good report.—J. GARRATT, *Meopham, Kent.*

A MAKESHIFT BEE-TENT.

[295.] Can any reader of the *B. B. J.* tell me whether 'Root's folding bee-tent' would be any use for manipulating a frame hive or driving a skep at small flower shows, *fêtes*, &c., where it would not be worth while to send the large bee-tent of the County Association? I have often thought a small inexpensive tent in the hands of energetic local secretaries might be very useful. In most counties there are plenty of occasions when a local secretary might attend with a tent of this kind, manipulate a frame hive, and deliver a short lecture on modern bee-keeping, &c. I should be glad of any suggestion for a cheap tent of this kind.—T. D. S.

[It would not be difficult to devise a light and portable tent suitable as a makeshift at small shows, but 'Root's folding tent' could be easily improved upon for that purpose. The objection we entertain for your proposal is that the flying bees would be entirely confined within the net-work of the tent, and this is always apt to cause trouble.—EDS]

A CURIOUS EXPERIENCE.

[296.] On Thursday, July 17th, a large swarm issued from a bar-frame hive belonging to the Rector of this parish, and, after settling upon a neighbouring tree, was hived in the usual way in a straw skep, and left till the evening for transference to a frame hive. At about six o'clock the writer, accompanied by a friend, went to transfer the swarm, and after being thrown on to a board in front of the hive, the bees started into their new home in beautiful style. When about half the bees were in, the writer remarked to the Rector, who was standing near, 'I have a bee up my leg,' and at once killed it! The Rector then observed, 'What a curious thing it would be if the queen were to find her way up any one's leg,' and he wondered if the bees would follow her. Directly afterwards the assistant exclaimed, 'I have a bee up *my* leg!' and he also killed it, when, to the amazement of all, he took from the inside of his trousers the poor queen—killed, of course. The remainder of the bees went into the hive, but had not been there more than five minutes when they all came out with a rush, and after circling in the air for a minute or two, returned to the hive from which they had originally issued.

The honey season here has been a rather bad one, but not so much so as in some parts. The writer has six hives, and has taken about forty pounds of extracted from the lot. Most of this was gathered during the last three weeks from the limes. These are now practically over, but if the weather would only keep fine a good thing might be made from the heather, there being hundreds of acres close to hand.—SAMUEL E. HOWSE, *Castle Rising, King's Lynn.*

YUCCA AS A BEE-PLANT.

[297.] I noticed to-day the bees working upon the blossom of the 'Yucca.' What a mighty bloom it is! I believe it only blooms once in three years. The flower is very lovely if the outside white covering be turned back, showing the centre. It resembles very much the passion-flower. I counted no less than twenty-three bees at a time on one head of the leek. Oh, that we could have one month of this weather (1st August)!—we should yet fill our hives.—ALF. E. BOOKER HILL, *The Chase, King's Lynn, Norfolk.*

PRICE OF HONEY IN SECTIONS.

[298.] On 29th July our agent for the sale of members' honey informed me that he had several orders for honey in sections, but no sections on hand, and that 8*s.* 6*d.* per dozen could be obtained for good sections. Bee-keepers selling directly to private persons should ask for more than this, which is a wholesale or trade price, our dealings being mainly with grocers, &c., who have their profit to make.—HENRY CHENEVIX, *Hon. Sec. Irish B.K.A., Dublin, August 1st*, 1890.

THE SEASON IN NOTTS.

[299.] The season here has been bad, but now the bees are hard at work on the blackberry, &c., and I hope will collect enough stores for the winter, although I examined the hives of a neighbour in Notts and they had no sealed stores and only an average of about five pounds of honey. The seed of the thistle (Canadian?) that 'A. E.' so kindly offered to your readers in 1888 is now with me in full bloom, and visited by the bees till dark every day. It is about eight feet high, and covered with bloom, and liked, I think, especially by Italians. In regard to the swarming propensities of Carniolans, a stock of mine swarmed on June 14th, 15th, 18th, 20th, and 27th. On each occasion I cut all queen-cells out and returned the swarm, but uselessly, as they just formed the base of other queen-cells, deposited eggs, and out again. Out of patience, I at last placed them in a skep, and even now they are playing the same game with casts. My other stocks (Carniolan) have treated me nearly as badly. I have extracted this year and last upwards of 500 sections with Lowth's 'Unique' extractor, and the breakdowns have been about two per cent, and those when very weak sections, and fastened to the top bar of section only. It does its work A1.—ST. VINCENT, *President Notts B.K.A., Norton Disney, Newark.*

APPLIANCE DEALERS.

[300.] The *cacoëthes scribendi*, happily, does not often seize me, and I have a particular repugnance for the brute when it takes the form of a cheap advertisement in your pages under cover of an interesting (interested?) article on bees and bee-keeping. I therefore hope that you will withhold my name from the public. Yes, Mr. Editor, I am one of the unfortunate individuals who sell bee-appliances, who have lately come in for such a shower of abuse, from the

editor downwards; and it almost looks as though some of this abuse were well merited when one reads some of the replies which gentlemen in the trade have thought it incumbent upon themselves to send to you for publication.

I notice that you again refer to lack of competition on the part of manufacturers at bee and honey shows. Well, to talk about 'rings' and 'boycotting,' as some of your correspondents have done, is simply absurd. Manufacturers do not attend shows (speaking for myself) because the business is too unprofitable to bear the expense. In my own case, to go to the 'Royal,' for instance, with sufficient goods to show what I can do, would have entailed an expense of about 15*l.*—it is the same with others. Now, showing goods can only have an effect upon those who see them. Is it to be supposed that intending purchasers of a hive or two will flock to Plymouth, or to any other place, in order to personally select, from the displays of numbers of makers, the few articles they happen to be in want of? No, sir; whether it be a 'royal,' or 'imperial,' or any other show, the local bee-keepers only, and those whom other business brings into the neighbourhood, see these costly displays at all.

Now, Mr. Editor, let me ask you a business question. Do you think that 15*l.* spent at a show as an advertisement would pay better than 15*l.* spent, say, in advertisements in your columns? And can you expect business men to throw away money simply to gratify the promoters of shows? The question has been asked how it is that dealing in bee-appliances is so unprofitable that dealers cannot afford to go to shows, and the blame, forsooth, has been laid at the door of the Committee of the B. B. K. A. and kindred associations, and the delightful suggestion has been made to put the dealers on the Committee! I take it that bee-keepers' associations have been founded for the purpose of promoting the interests of bee-keepers, and if the committees have succeeded in reducing the prices of bee-appliances they have simply fulfilled their mission. It is a perfectly legitimate action for committees to offer prizes for articles at a given figure. If people are to be found who are so foolish as to stage articles which cannot be supplied at the price with a profit, it concerns no one but the exhibitor; and prudent business men will abstain from such a competition. They know that the more orders the prize-winner gets, the sooner will he have to retire from the business.

The bad policy of selling goods at or below cost can only be equalled by the what I call unwisdom of the man who advertises that he did not go to the show because he did not anticipate finding any one there 'worthy of his steel!' So long as we have business men of such calibre in our ranks, committees are not required to ruin the trade. As regards the delays in execution of orders complained of, I can only marvel and say with Bret Harte, 'Can this be?' though I should cease to wonder if it were a case of prize articles.

And now, Mr. Editor, comes my turn to grumble. How is it that you recommend a certain firm for a certain article, say formic acid, when other and older advertisers offer the same article at the same price in their ordinary price-list? And do you think that it is quite right that you should lend your hand to sugar being sold at cost, when those whose business it is to supply bee-keepers' requisites offer the identical article with a net profit of about 9*d.* per cwt.? I know your generous heart, and that you would sooner do any one a good than a bad turn, especially to a personal friend, but do not make bad worse and give my name to the public. It is my business to advertise my business—not yours; and if I have an objection to an advertisement for which I am not charged, I have a right to have that objection respected.

Please excuse this long letter, and I hope—perhaps so do you—that there may be an end soon to this controversy.—AN APPLIANCE DEALER.

[It is quite contrary to our practice to name particular dealers, but when correspondents put the question direct and state the difficulties under which they labour in procuring special articles, we must either refuse point-blank or give the information asked for. Referring to formic acid, we knew of no dealer who 'listed' that article till we received our correspondent's catalogue. With regard to sugar also, our desire is to assist bee-keepers, especially those who are working men, and our efforts to give them a chance of procuring sugar at the lowest possible cost were used quite regardless of the interests of grocers. At the same time we were ignorant of any dealer's catalogue where sugar was quoted at a specially cheap rate till now, and our correspondent has certainly erred in allowing his modesty to keep his price list in the background.—EDS.]

ARTIFICIAL SWARMING.

A WARNING.

[301.] I commenced bee-keeping by buying a hive and bees last October. They wintered very well, and in spring occupied fifteen frames. As I wanted to increase to three stocks, and could not be at the place during the time they would swarm, I adopted the following plan:—I took three frames with queen and put them into a new hive, with three other frames fitted with starters of foundation. In the other hive I put three frames of brood, contracting the parent hive to eight frames. All appeared to go on well; the two hives with brood each reared a queen (or I ought to say that there were two queen-cells in the frames put into one hive); they all three worked well for four weeks, when very cold and wet weather set in, and then came the loss. After three days' wet weather we had a very hot, sultry afternoon, and the centre hive, the one I divided, swarmed and decamped, for I never found them. I had put supers on to try and stop them, but the bees did not take to them.

The next day or two were very cold and wet, and on the Sunday following there were thou-

sands of bees dead on the ground below the alighting-board, and I took it to be the swarm returning, and being refused admittance. But on the following day all three hives were in much the same condition, so I opened them, and what a sight presented itself! The bottoms of the hives were completely covered with dead and dying bees (starvation). I cleared them out, and got the few that could move at all and put them back in the hive, and poured warm syrup thinly over the bees, and they soon were as lively as ever. I examined them well, and saw the queens were all right, and they went on very well till the end of July; but on August 4th they were not working, and on examining the comb, I found no queen in any of them, while the parent hive was robbing one of the other; no eggs or grubs in any of them, but plenty of bees ready to come out of their cells; some did come out whilst looking at them. I called in the advice of a man who has kept bees for years, but he could not account for the loss of the queens. Can you kindly say how it is the three queens should all go, and if I should proceed to re-queen them?

Had I taken your *Bee Journal* regularly I should not have lost them, but I could not get a copy for two weeks. When I did get them I saw there was just the information which would have warned me to feed stocks.—A NOVICE, *Sheffield*.

[Without attempting to express an opinion—which, at best, would be only a guess—on the 'why' and 'wherefore' of your mishaps, it may be safely said that you will fail entirely as a bee-keeper unless more caution is instilled into your methods of performing bee-operations of the kind described. You should have made yourself acquainted with the best methods of making an artificial swarm at the outset. To make three stocks from one was, in the hands of a beginner, to court failure; the *safe* plan would have been to make three from two, and to attend carefully to warm wrapping and feeding in such a season as this.

We can throw no more light on the loss of queens than did the bee-keeper who was called in; so many things may have brought about the mishap that, without full knowledge of all your proceedings, it can only be guesswork to say. A little judicious caution in the future will, we hope, prevent a recurrence of the mischief. If you could enlist the help of some one with experience it would be advisable to re-unite the bees making up two colonies, and re-queen these.—EDS.]

A CORRECTION.

[302.] I should like to correct a slight mistake in your report of the Lincolnshire Bee-keepers' Association Show at Boston in *B.B.J.* for July 31st, which reads as follows.—'Mr. Renshaw took third prize with his "Nottingham prize hive," *now increased in price*, but still good value at 12*s.* 6*d.*' This might prove very misleading to your readers, and detrimental to myself, as the hive in question was not the 'Royal Notts 10*s.* 6*d.* hive' simply, but with the following important additions, making it 'good value at 12*s.* 6*d.*,' viz., four stout legs, the improved Royal Notts section rack instead of the common two-way rack, improved shutters, and movable porch. Lifts in two parts, and improved in form, so that one may be used under and the other over stock in winter.—CHARLES REDSHAW.

WAR!

[303.] July 30th, 1890, was a dull, unhoneyed day at the well-known Wingfield Apiary on the borders of the New Forest—just such a day as the Arch Enemy finds suitable for employing idle hands. All the mouth the turkeys and ducklings had revelled around the hives, awaiting the constant outpouring of the delicate morsels brought to the alighting-boards by the cruel sisters. They were like the vultures in the Parsee cemetery, and wandered only within sight of the funerals incessantly going on. But a day of revenge had arrived. What caused the sudden and dire spark of war history telleth not. At one o'clock the sentry, in the shape of the dairywoman, went her rounds, and declared all quiet. At two o'clock a shriek for help and a headlong flight announced that the enemy were out in force, and that war was proclaimed. Such shrieking, cackling, quacking, and flapping of wings must surely mean calamity. Ah! what a sight was there! From the first attack victory had not been doubtful, and the bees, as attackers, had driven their enemies off, and were chasing them around the poultry compound, whither they had fled for protection. Already four of the turkeys, fine young birds half-grown, and of a strain procured with difficulty and expense from a distance, lay *dead*, covered with wounds; others were dying, and the rest were vainly trying to seek safety in their houses by crowding up the doorways. The ducks, ducklings, and fowls were in no better case when help arrived and bore away the vanquished, not without receiving a large share of attention from the enraged victors, who, respecting neither neutrals nor red cross, carried the war on indiscriminately. The evening's summing-up found nine fine turkeys, two ducks, and a hen dead, and the number of wounded probably included all the rest! The loss to the victors could only be estimated in thousands, for they had literally covered their enemies with their death giving and taking darts from head to foot. In ten minutes they had destroyed that which ten years of such seasons as this could not replace, and dire was the vengeance called down on their heads.

Fortunately for the bees, she to whom the life of one of those sweet turkeys was more than many stocks of bees was absent, a hundred miles away, or the sulphur pit had, perchance, been their portion that night—not that their safety is even yet assured, for however interesting such pets may be to the few, there are not many who would care to experience a second time such a sight as the bloody war here faithfully recorded, and matters are not much mended by the know-

ledge that the 'gentle' Italians had no part *this* time in such destruction. Perhaps a rigorous application of the extractor may tend to tame them and improve matters. Let us hope so.—E. H. Bellairs, *Highcliff, Christchurch, Hants.*

A GENERAL REPORT—HEATHER PROSPECTS.

[304.] It is now the 11th of August, when many bee-keepers will have nearly the whole of their stock on the moors, some with the expectation of getting a well-filled hive of heather honey, others with no hope of a yield, as the latter apiaries have been running short of food for five weeks now. My opinion of the heather, gathered from personal inspection, is that it will yield well if not destroyed by the inclemency of the weather. The plants are well grown and contain much blossom. Dewy nights and fine days do well for it, and I only hope that the weather might keep good to give the bee-keepers a chance. As far as my knowledge goes, the majority of stocks seem but in moderate condition. A short summary of the places I have visited in my journey thirty-six miles northward from here might prove what I have said.

Long Framlington.—The latter end of July bees plentiful, casting drones out, and getting light swarms very early and plentiful. The bee-keepers about here are capital hands, very watchful over their stocks, and do not stand and see the bees starve.

Felton.—About same time, I am informed, there were not many swarms about this place in June or July, and just now all stocks are getting awfully light. I can't give much praise to Felton bee-keepers for the condition of their stocks.

Powburn records many swarms with some bee-keepers; with others almost none. The bee-keepers here, with the exception of one, were very willing to give all information possible—this particular one being a gentleman of the old school, who couldn't quite see his way to give any information. 'You might as well ask how many lambs I have got,' he said in answer to my inquiry as to the number of his stocks of bees. I gave up the attempt to gain information as to how the bee-business succeeded with him when I learned that this same old gent will not exhibit his turnips, in case any one was to try for his farm.

Wooler, with a good few bee-keepers, had very little favourable to record. Few swarms, and stocks gradually getting lighter. In fact I lifted a good few, and found they were only light. Wooler has a great name among bee-fanciers, and it appears has had for over fifty years. Some of the inhabitants credit the place with having had among its residents a bee-keeper they called 'The Bee King,' of whom great stories are told. However, all bees I examined were very light. They depended upon clover and other field flowers. On the other hand, where the situation was surrounded with plantations, hives had done better, some being heavy. On the whole, hives are very well stocked with bees wherever I travelled.

Bender, about two miles from Wooler, and close to Akeld, has had a good few swarms, and a little further north there are some very keen observers of bees ready for a chat about what they have seen in the *Bee Journal*.

It is to be hoped that the weather will continue as good as it has been for the last ten days, because, so far as my knowledge goes, the bees are working very hard upon the heather.—Carbon, *Ashington, Morpeth, Northumberland.*

GETTING RID OF FERTILE WORKERS.

[305.] Having supplied a lady with a large swarm of bees, which I put in a frame hive, I was surprised on opening the hive, some ten or twelve days later, to find no signs of the queen, although the bees had worked out six frames, and were storing honey and pollen. On examining the hive again in a week, I noticed eggs in the cells. I did not stay to see if they were laid regularly or not: but a few days afterwards I opened the hive again, and saw that a fertile worker was there instead of a queen. I think it was probable the queen got hurt or killed in taking the swarm, which had settled in a very awkward place. I at once got a good 'cast' in a skep, and put the bees from the hive (with the fertile worker) to the cast, closing them up for a day, and then letting them work for two days. I then returned them to the frame hive, having cleared out all eggs and larvæ from the combs. I examined them in a week, and found the frames regularly occupied with eggs and the queen all right, with no signs of the fertile worker. As I gave a nice lot of bees with a young queen to them they are now a strong lot of bees. This is the first time I have tried this, and being successful, I thought it would be interesting to others.—J. G. Blackman, *Expert for the Surrey B.K.A.*

BEE SHOWS TO COME.

Bees, Hives, Honey, etc.

August 20-21.—Shropshire B.K. Association. Annual exhibition of bees, honey, hives, and appliances, The Quarry, Shrewsbury. For prize lists apply to Miss M. E. Eyton, Hon. Sec., Wrockwardine, Wellington.

August 27.—Exhibition of hives, bees, honey, &c., in connexion with the Lancaster Agricultural Society. Prize lists and entry forms from W. Liddell, Dale Street, Lancaster. Entries close August 6th.

September 3-4.—Lancashire and Cheshire B.K.A., in connexion with the Wirral Agricultural Society's Annual Show at Birkenhead. Nearly 30*l.* value offered in prizes. For schedules, &c., apply Sec. Wirral Agricultural Society, Birkenhead. Entries close August 15th.

September 3–4–5.—West Cumberland B.K.A. first annual show of bees, hives, honey, window plants, &c., at Harrington. Forty classes and over a hundred prizes. For lists apply E. McNally, Sec., Harrington.

September 10–11.—Derbyshire B.K.A., in connexion with the Derbyshire Agricultural Society. Annual show at Derby. Nearly 15*l.* besides medals and certificates offered in prizes. Hives and appliances open to all England. For schedules apply W. T. Atkins, 6 North Street, Derby. Entries close August 28th.

September 19.—Wigtownshire Apiarian Association. Eighth Annual Show at Stranraer. 12*l.* in prizes for honey. J. Balfour Robertson, Hon. Sec., the Manse of Leswalt. Entries close September 2nd.

WORKMEN'S HOLIDAY OUTING.

The workmen in the employ of Mr. T. B. Blow, of Welwyn, Herts, bee-appliance manufacturer, had their annual trip the week before last, when they took advantage of Hobbs' excursion for three days to Llandudno. Having visited various places of interest, such as Snowdon, Bettws-y-coed, Llanberis, and other places, besides making the acquaintance of several Welsh bee-keepers, they returned home greatly delighted with the outing, fortunately having had grand weather.

Queries and Replies.

[175.] *Does 'Tanging' constitute Ownership?*—A Sunday morning or two ago, a strange swarm of bees came over a neighbour's garden, who began to 'tang' them with a dustpan or the like; but instead of stopping there they made for and entered a hive which the bee-keeper had prepared ready for a swarm which he expected to issue from one of his own hives. The neighbour considers he has a claim on the swarm as he 'tanged' them. The bee-keeper has no desire to decoy strange swarms, but does not consider neighbour 'Tanger' *has* any claim on them at all! If you could kindly spare a little space and time to insert a reply to this in your much-esteemed *Journal*, giving some information tending to the enlightenment of the old-fashioned and superstitious folk in this neighbourhood, you would confer a great help to many this way. I may state that I have no personal interest in the matter.—A SUBSCRIBER.

REPLY.—Your neighbour who did the 'tanging' has no claim to the swarm under the circumstances. He might certainly be an important witness for the real owner of the stray swarm if that person put in a claim for the bees, but we cannot think that the act of 'tanging' on the part of an outsider can constitute ownership. If it did, who would decide when several persons attempt to 'bring down' a truant swarm by 'tanging?'

[176.] *Incompleted Sections.*—My hives are well filled with bees, both the old stocks and swarms. I took some good honey at the beginning of the season, and still have sections on most of my hives, but the bees seem to make no progress with them. Would it be desirable to remove those sections which are not nearly filled, and then make up a reduced number of section crates with the well-advanced sections only, and return them to the strongest hives? If the partially filled sections were placed behind the dummy-board, would the bees clear the honey out of them and take it up into the half-filled sections, so as to finish them off? What is the best way of proceeding for uniting bees in bar-framed hives, and what is the best time for doing it? When is the best time for moving bees? I am over-stocked, and want to get rid of some of my hives. I began the season with six stocks, and have had four swarms. I only take honey from my bees in sections, and last winter my six stocks went through it without the help of any feeding, and when I looked at them in the spring their supplies were so abundant that I did not think it necessary to feed them. I dare say you will think that I go too much on the leave-them-alone system. I do not get great results, but I now have both more honey and more hives than I want for my own use.—A MEMBER OF THE B.B.K.A., *Wareham.*

REPLY.—It is quite usual to rearrange section racks when the season is drawing to a close, but this year things have gone so badly in the early part of the season with many stocks that bee-keepers will naturally desire to take advantage of the present good weather, and leave on sections in the hope of their being completed. Try this plan yourself for a week or so, and then do as you propose. The bees will remove the honey from incompleted sections placed behind the division-board, and carry it above.

[177.] *Are Bees a Nuisance?*—I have a stock of bees in a frame hive. They are set down on a piece of ground ten perches in extent, and I have had them there for six years, and never had any complaints regarding them, but my next-door neighbour now says that the bees are a nuisance to him, and that if I don't move them he will prosecute me. My own brothers and sisters go up and down the garden and never get stung, so I ask, Can they compel me to remove them?—A. O.

REPLY.—You should by all means endeavour to conciliate your neighbour if possible, and by taking proper precautions, by way of keeping the bees quiet and peaceable, much trouble may be avoided. At the same time it is by no means an easy matter to compel the removal of bees by law. They must be proved to be a nuisance and a danger to the public before any pressure can be put on you by way of insisting on their removal.

[178.] *Claiming Swarms.*—Will you or any bee-keeper kindly give me a little advice through the *B.B.J.*? I know very little about bees, except what I have learned from the

Journal. I have lived in Dunfermline since the May term, and my bees are at Leuchars (about thirty miles away) in charge of my father. My query refers to a frame hive, which swarmed on the 16th of July. I should tell you that the bees are about a quarter of a mile from my father at a farm, whose occupant gave us permission to place them in his garden, but who does not reside at the farm, but has a caretaker, a shepherd, in his employ. This man has a son, who gave information that the bees had swarmed. My father engaged a man to go and hive them for him, sending a skep and floor-board for the purpose. The swarm was hived accordingly in due course, but now the shepherd's son claims them, and will not allow them to be touched without his permission. Can the man claim the bees under these circumstances? Kindly let me know. It would be bad enough to lose the swarm, but at least I will make him transfer the bees into a hive of his own, so that I can get my own skep and board back. I am very happy to say that my bees are thriving well, but are not making much progress with the honey on account of the dull, rainy weather. I have taken fifty-three well filled and sealed sections from them, and am hoping we may get some good weather, for the heather here is in full bloom.—R. A. TERRACE, *Dunfermline, N.B.*

REPLY.—Under the circumstances there should be no difficulty in recovering either the bees or the value of them. By the English law the matter would soon be settled in the County Court. Perhaps some Scottish reader will enlighten us on the law of Scotland regarding such cases.

[179.] *A False Alarm.*—I am perplexed: will you help me? My neighbour (whose garden, with bees, is about 150 yards from my own) called me to look at one of his stocks some evenings ago. I was much alarmed, and advised him to show an expert a frame from it; I could see the whole stock was devastated by disease, but the smell was not such as I had always found to accompany foul brood, and so I told him. Some ten years ago I began with one stock, which I found was affected with foul brood; at the advice of this same expert I made a swarm of the bees, starved them for about thirty hours, and gave them an entirely new house. I have not seen since in my own hives, nor in any around me till this year, any trace of the malady. This same expert has seen my apiary and examined it I think every year since I started until 1889 inclusive, and has never hinted that my bees had any taint, either to me or to my wife, who in my absence has gone round with him. Now, when my neighbour goes to the expert referred to he tells him—first, that it is foul brood, but not the kind which has such an evil odour; second, 'that I have always had it.' I am glad to say that we neighbours have got over our row! Thereafter we agreed to request the advice and opinion of Mr. Frank Cheshire, but he is not located so near to us as we thought, and now, my friend expressing himself satisfied that I have not brought it to the neighbourhood (to which I came in autumn 1888) from the simple fact that we can find no trace of it in my own stocks, I am therefore free to consult whom I choose for my own satisfaction. The three frames I send you were removed from a stock (on August 4th) which has done excellent work on sixteen frames. I put the three on one side, as being the only doubtful frames, for further inspection. I can find nothing amiss—can you? In the hive from which I took these I found three frames with a batch of 2½ in. square, more or less tainted; these I destroyed on June 29th. I have refrained from giving a name to the expert's conduct. I shall get over that. Could I send anything else to enable you to form an opinion? I am anxious to act straight, more particularly as I have been trying to encourage the pursuit of bee-keeping in and around my village.—T. F. K.

REPLY.—There is nothing in the comb sent to cause alarm. Brood has hatched out from every cell save those containing honey or freshly gathered pollen, and they smell as sweet and wholesome as healthy combs should do. Beyond this, your assurance that the bees 'have done excellent work on sixteen (standard) frames' this year, inclines us to think you have been mistaken in suspecting the combs as being 'more or less tainted' in June last. In any case we should have no fear for the stock now.

[180.] *Bees Dying.*—I find every day in front of one of my hives a lot of dead bees, and have enclosed some for your inspection. Can you tell me the cause of their death and how to prevent it? At the rate they are dying I am afraid I shall soon lose the stock.—M. H.

REPLY.—You should open the hive and endeavour to account for the dead bees, by an inspection of the combs, &c. Possibly a portion of the stock may have died for want of food (in such a season as this), and the bees are merely carrying out the dead. The bees sent give no indication of the cause of death—in fact, they were flattened out of shape in post.

[181] *Using Formic and Salicylic Acids.*—I much regret being compelled to again trouble you on 'foul brood,' but I am rather in a fog as to how I must proceed. I am desirous of trying formic acid, which a local chemist will supply at 4*d.* per ounce, or 2*s.* 6*d.* per pound. In the *Journal* for June 26th, it recommends this being poured into a *clean comb*. I regret to say I have none by me. 1. Will not a piece of sponge, or some similar absorbing material, answer the same purpose? Then, as to salicylic acid, it appears I have been using this in the wrong way. The *Journal* says use salicylic acid, but does not say how. Perhaps I had better state what I have done so far. 2. A few days since I removed the super (nearly finished), and made an artificial swarm, but putting the queen into an empty box on the old stand. The hive proper I removed to another situation. 3. I sprayed the inside of the box with thin syrup, into which I had put a tablespoonful (to

the quart) of the following:—1 oz. salicylic acid, 1 oz. powdered borax, dissolved in two quarts of boiling water. The comb and bees of the 'old' hive I sprayed well *with the same mixture*. I have all my four hives affected slightly, say five per cent of the cells, with dead grubs in them, and I sprayed the combs and bees of these with the above mixture. Two of the hives I would like to try with formic acid. I may say they are all very strong in bees; in fact, I have had about thirty pounds of surplus honey from each, all in sections, and the body of the hive contains a quantity of honey. I forgot to say I intend to put the bees now in the empty box into an entirely new hive, fitted with foundation, and feed on syrup and salicylic acid.—E. G.

REPLY.—1. One of the combs in the hive will do for the purpose. Don't use sponge. Select a comb with sufficient empty cells to hold about three ounces of the acid. 2. Why did you make an artificial swarm from the diseased stock? One of the main elements of success in curing foul brood is to have the bees well crowded together for warmth; therefore to rob the hatching brood of the bees, which are the only means of maintaining the necessary heat in the hive, was to considerably lessen the chance of successfully combating the disease, besides forming two colonies for treatment, and thus doubling your labours. 3. Your formula for using salicylic acid in syrup for bee-food is quite correct. The mistake was in using syrup so prepared as a disinfecting spray for sprinkling the hives. For this purpose the solution is used, but *not in syrup*.

[182.] *Ridding Hives of Moths and Earwigs.*—In two of my bar-frame hives (though I have taken ten pounds of honey from one and six pounds from the other in May) I notice moths whenever I lift off the top, and in another stock I find earwigs get into the hive. 1. Would you advise my cleaning the hives and washing them with a solution of carbolic acid? and if so, how should I get rid of the bees while doing it? 2. What are the proportions for a solution? 3. Do you recommend destroying a stock when it is about five years old? I have had one four years, and this is the first year they have worked in a super, as in the long railway journey a great many were killed. 4. I have got two swarms of this year in straw skeps; how can I move them into a wooden hive? As they have filled the skeps with honey, should I do it now? 5. When I take the supers off, shall I commence feeding? Is a plain syrup the best to use? I expect to take about sixteen pounds more from each of my old stocks, but none from this year's swarms or the five-year-old one.—SUFFOLKER.

REPLY.—1. A small cake of camphor laid among the quilts will prevent moths from harbouring there. 2. Earwigs, except for being a little uncleanly, do no harm about hives, as the bees will keep them to the outside. Painting their hiding-places with a solution of carbolic acid (two teaspoonfuls to a cupful of hot water) will help to quit them. 3. If the stock is requeened there is no need to destroy it because of the *age* of the bees, for none will be over three or four months old. The queen alone wants renewing. Next spring, the combs, if very faulty, may be gradually renewed without destroying the bees. 4. For instructions in driving and transferring bees from skeps to frame hives consult some handbook on bees, such as *Modern Bee-keeping*, price 6*d.*, but some little experience is required before it can be done successfully. 5. Yes.

[183.] *Honey-dew.*—On the 31st July I took off a crate of twenty-four sections, and was surprised to find them all filled with stuff almost as black as ink, and this in the midst of so much white clover and limes. Yesterday, hoping to meet with better luck, I removed a crate from No. 2, but that was filled in the same manner with the black abominable stuff! *Is this honey-dew?* If so, is it fit to feed the bees on, and how shall I give it to them?—A COTTAGER, *Ticehurst, Sussex.*

REPLY.—Most probably the blackness you complain of is caused by honey-dew, but we cannot be certain without seeing a sample. In any case we should have no fear in allowing the bees to winter on it. It is bad enough to have to feed stocks which have been unable to provide for themselves, but to extract honey for the purpose of throwing it away, and being compelled to give the bees syrup in lieu of it, is quite beyond the endurance even of bee-keepers.

[184.] *Claim for Damaged Bee-Goods.*—Will you kindly enlighten me on the following questions, which may be of interest to others as well as myself:—1. If articles paid for when ordered are damaged in transit through insufficient packing, who should bear the loss? 2. If sender denies that the packing was insufficient, and says that a claim for damage lies against the railway company, who should prove the packing and make the claim?—J. W. NAPIER, *Stretton Parsonage, Stafford.*

REPLY.—When articles are damaged in transit, the proper course is to claim against the parties who committed the damage—*i.e.*, the railway company. When this is done an inspector will be sent by the company to examine the goods and the packing. If the latter is considered faulty or insufficient, the claim will be resisted, and the dealer then becomes responsible.

[185.] *Removing Bees.*—When is the best time to remove hives of bees (both bar and straw)? It will be convenient to move them any time between now and April next; distance about five miles.—O. R., *Wakefield.*

REPLY.—Any time during the winter, after the bees have been confined to the hives for a few weeks by cold weather. Arrange it so that the bees reach their new quarters after dark if possible, so that none may fly when entrances are opened.

[186.] *Varieties of Heather.*—As I am a very unlearned bee-botanist, I shall be obliged if you will give me a little information. Within less than a mile of my bees there are a great many acres of heather, both purple and light-coloured, of which I enclose specimens. I should very much like to know whether either of these is the kind so much sought after, as being so valuable to bee-keepers; and also, what is the small piece of which I enclose specimen?—C. C. P., *Valentia, co. Kerry.*

REPLY.—The 'small piece' sent is the best of the three for honey. 'Bell' heather, though yielding honey, is not nearly so productive as the small flowered variety generally known as 'ling.' It should also be borne in mind by bee-keepers, that low-lying moors are not good for honey production. Heather 'hills' are better for bees than 'dales.'

Echoes from the Hives.

Uttoxeter, Staffs., August 9th, 1890.—The experience of bee-keepers in this district has been much the same as is prevalent all over the country. At the end of July there was no honey in the hives; but bees worked well on the limes the first few days this month, and some have gathered about enough to winter on, or nearly so, while others have no store at all scarcely. We keep entirely free from foul brood in this district, which is something to be thankful for, but I am afraid if the disease made its appearance it would be radically cured—by extinction, for the bee-fever is on the wane here, as there have been no 'big takes' since 1881. That 'much-disheartened' correspondent, mentioned in your leader of the 7th, has a lot to learn yet.—T. HARPER.

Griffithstown, Newport Mon., August 9th, 1890.—Although season has been wet, I don't think I shall do badly by my bees. A stock driven from a skep in May has now ten frames all of good weight, and I also had a swarm from it which I hope to winter well. From another hive I have taken a few sections and have some more on it nearly ready for removal. I mention my bit of success because I have only just begun to take the *B.J.*, and see that most readers have had a bad season of it.—HAROLD GRIFFITHS.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

W. MITCHELL (Carnforth).—Your denunciations of railway companies, directors, and shareholders are quite 'too dreadfully strong' for our columns. All the same, when their treatment of you 'is sufficient to make every corpuscle in one's blood boil with rage!' there must be *something* in your complaint, and we sympathise with you accordingly. Your letter, however, so nearly takes the form of downright 'bad language' that the highly respectable *B. B. J.* would be seriously compromised were we to 'print you,' to say nothing of damages for libel. Our correspondent is pugnacious—we are not: and the least we can say is that such expressions as 'the infernal and infamous railways' and 'infamous pirates' are—well, *not polite.*

H. COODE (St. Austell).—No kind of wire-netting is quite suitable for the cage of honey extractor. It is not sufficiently rigid for the purpose, and, if used at all, must be 'stayed' by a knife-edge backing, as in 'Meadows' patent,' besides being of small mesh (not over half-inch).

T. HARPER (Uttoxeter).—The small flowered heather (No. 2) is *the* honey-yielding plant. Bell heather (No. 1) is also a honey producer, but not nearly so good as No. 2.

E. M. (Borrowdale, Cumberland).—Do not destroy a queen which is doing so well. She may not be old, as the bees often re-queen the hive themselves. If the 'ling' is only a half-mile away, you must on no account move the bees to it, as many would return to the old stands and be lost.

BEE-MASTER.—The dark colour in drones sent is merely a 'sport' resulting from a cross in breeding; it is no indication of disease. The shiny black appearance of the workers is owing to the loss of all pubescene on the abdomen. It may arise from several causes, and in your case we should like to know for how long you have noticed the appearance described, before expressing an opinion.

H. S. (Ennerdale).—Bees will do fairly well from ling (or heather) if within a mile or a mile and a half: when farther away they should be sent to it. Of course, the nearer to the source of supply, the more advantage gained.

A. H. PEACH (Oadby).—A queen often lays 3000 eggs per day in early summer.

S. W. R.—The Willesden Paper Company have agents in South Castle Street, Liverpool. A post-card addressed there will get you the information wanted.

W. H. L.—Stir in the salicylic acid solution when syrup is taken from the fire.

Communications from J. D. MCNALLY, HAROLD GRIFFITHS, M., are in type, and will appear—along with several late Queries, &c.—next week.

THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

No. 426. Vol. XVIII. N.S. 34.] AUGUST 21, 1890. [*Published Weekly.*

Editorial, Notices, &c.

BEE-KEEPING IN 1890.

It was thought that a sufficient number of reports would have been received by the end of the third week in August to fairly indicate the general result of the honey season now rapidly drawing to a close, and that, leaving aside, for the present at least, the chances still left for our more fortunate friends whose bees are hard at work on the heather-clad hills and moors, we might summarise our information so far as to classify the year 1890 as a good, or moderate, or poor one, for honey production in the United Kingdom. But the information so far available is certainly not sufficiently compendious to enable us to gauge results yet. Whether it is that bee-keepers cling to the hope that something may still be done to redeem the threatened partial failure of the honey crop, or that they consider no news is better than bad news, we cannot say. One thing, however, is very satisfactory, and that is the general absence of complaint on the part of many who must have felt keenly disappointed when the signs of a successful season foreshadowed by the early summer months were scattered to the winds by the wretched bee-weather later on.

In view of this, it is very gratifying to find so cheery a spirit prevailing, and it proves what we have always held to be a fact, viz., that British bee-keepers derive a large amount of pleasure from the keeping of bees, apart from the profit which in a good year combines the one with the other.

Considering that we are writing so late in the season as the 19th of August, it must be admitted that the time left is too short to hope for more than the completion of partly-filled section racks and surplus boxes even in the best districts, while in ordinary ones bees may gather sufficient to make feeding unnecessary—and, as a correspondent writes, there's some comfort in *that*. It is irritating, we know, when all one's work of preparation has gone for nothing. We may devise the most elaborate plans of our bee-work, but, like those of Burns's mouse, they 'gae aft agee,' and, after all, the failure of *our* schemes, so far as bee-risks go, are small in comparison with those of the said mouse, for we have still our bees and our hopes for next year left to us.

A satisfactory feature in modern bee-keeping, as regards its stability and the firm hold it has taken on the minds of those who have joined our ranks, is the advance made by recruits of recent years in maintaining their interest in the pursuit. There is no falling off because we happen to have had a bad season; in fact, it may be safely said the time has gone by when the sole attention of the bee-keeper was concentrated on the amount of honey each hive yielded.

The same spirit is discernible in the steady increase each month in the number of readers of the *Bee Journal* and its monthly edition, the *Record*, indicating, as it assuredly does, that in spite of adverse seasons the 'cause' is spreading. Moreover, when it is considered how much of the contents of a bee journal is necessarily confined to merely technical subjects, supposed to have no interest for outsiders, it is apparent that there is something in bee-keeping beyond honey-getting, and that pleasant recreation may be found in reading of and studying the honey-bee and its 'ways.'

We are much concerned in maintaining this same interest, more especially as what may be termed the 'off' time is now approaching, when bees will be snugly 'tucked in' for winter, and the direct intercourse between them and their owners is suspended for several months. We therefore purpose, during the coming winter, to publish a series of short papers at frequent intervals on subjects directly connected with bee-management, such as may be useful for reference in cases of difficulty.

ABOUT BEE-KEEPING.—VI.

By the Wife of a Bee-keeper.

Dear M.,—In my last we left your colony of bees established in the new hive, the combs all complete, we hope full of brood, and the super or surplus chamber on. If you are fortunate enough to have had fine weather for the five or six weeks since the time of hiving, the sections should now be occupied with snowy white comb filled with fragrant and delicious honey. I want you to note particularly that after the month of July is over, it is of no use leaving on sections or super boxes longer, because the bloom of the main honey-yielding plants will have died down by that time, and when the flowers are over, the sooner boxes of honey are removed the better. Indeed, I may tell you that if they are left on till cool weather causes the bees to desert them for the warmer atmosphere of the brood chamber below, it will not be long before they begin to take down the honey stored above, and in a very short time your full boxes will be found to contain empty combs only.

I know you do not live in a district where heather grows, or I might have qualified this statement by explaining that in neighbourhoods surrounded by heather-clad hills, the honey season may be prolonged for a full month or five weeks beyond the time named, and the income some years does not quite cease in such places till the end of September. However, we have only to deal with your own bees, which have to depend almost entirely, after the month of May is out, on the fields and commons around you, in which I have noticed a very fair quantity of white clover growing.

Had your colony of bees been an established stock instead of a swarm, we might have expected some need for a second box of sections, placed on top of the first one; but a swarm of the present year will do very well if it succeeds in filling its hive and one crate of sections, which, as I think you know, holds about twenty-one pounds of honey.

I want you to pay very close attention to me while instructing you, in as plain words as I can, how to take your honey, for on the 'well-doing' of this operation depends a great deal, not only of your success, but of the comfort of bee-keeping to yourself as well as to your neighbours. When we remember that the bee is furnished by nature with a tiny but formidable weapon, in the form of a sting, chiefly for the purpose of defending its stores, it is easy to understand that when the bee-keeper sets about the task of robbing the hive, and carrying off almost the whole results of the incessant labour the poor bees have undergone since they entered on their new home, they will be up in arms at once, ready to defend with their lives what has cost them so much effort to obtain; and woe to the man or woman who attempts it in his or her own fashion, without having some knowledge of the bee and its ways. Of course any one has the power of appropriating the contents of the hive very easily by the barbarous and too frequent resource of suffocation; but it is this use of the brimstone pit by old-fashioned bee-keepers which is being so persistently opposed by those of the modern school.

It may be said to be a cruel thing to take away the honey at all; but this is by no means so. We look upon the bee as one of the creatures God has ordained for the use of man, and not only can its honey and wax be appropriated for his use without actual cruelty of any kind, but it is one of the vital principles of our system to ensure for the bees ample provision to carry them through the time when they are unable to gather food for themselves; and if they chance to fall on evil times, when natural food is scarce, to supply them with a good and wholesome substitute in the form of sugar syrup.

But to return to your bee-work. We have learned the 'art' of taking honey at our house without any of the trouble and upset which may be caused through bad management or ignorance, and I want you to acquire the same knowledge as has guided us. In the first place, then, after the sections have been examined and found ready for removal, the middle of a fine day should be chosen on which to operate. Now, one of the secrets of the 'art' which you must always bear in mind is, that when bees are at home in strong force, and the operator does all his work *at the hive*, especially if he stands in front in the direct line of the bees' flight, they resent very strongly any attempt to rob them of their own. You must begin by looking out everything likely to be wanted, preparing the bee-smoker with dry fuel, fixing on your bee-veil, &c., securely, and, until you can dispense with help, have an assistant at hand in case of emergency. The middle of the day is the best time, because half of the bees are away in the fields. Proceed very quietly and carefully to remove all coverings and packing from the section crate, standing, if possible, at the back of the hive to do so. Do not jar the hive or disturb the bees' work more than you can help, but, taking hold of the section crate with both hands, just give a screw-like motion to detach any comb fastenings, and proceed to prise it up a quarter of an inch by inserting a wedge between it and the hive. As soon as the first bee shows its face to inquire the meaning of your proceedings, give a few puffs of smoke, then raising the crate quite free of the hive on the side next to you, look under to see that no comb in the hive below is attached to the under side of the super, and if all is clear lift the super quickly but quietly off, and let your assistant at once place a folded cloth over the hole in the top of the skep. The bees are thus confined to the lower hive with no disturbance, and you should carry off your crate of sections to a quiet spot *some distance away*. You may ask, Why some distance away? Well! just this: bees, when deprived of honey, have nearly all the resentfulness taken out of them when removed fifty yards from their home, and you can proceed with the work of clearing the sections, when so removed, without

causing any disturbance among the other hives in an apiary. The bees, as soon as liberated, mostly fly back home, and beyond a little extra crowding at the entrance to the parent hive, all goes on as if no part of it had been removed. In short, let the disturbance (if any) take place *at a distance*, and your labour and risk will be reduced to a minimum. If the bees in the section crate you are carrying away have just a puff of smoke given them from below, they will remain quiet, and you may set the crate on the ground; on long grass is a good place, because it allows air to enter the crate, while no access can be had to it from the outside. The bees may be left for a few moments while you get your next requirements, viz., a box with close-fitting lid in which to put the sections as they are cleared of bees, and a good-sized box without lid (the roof of a frame hive is the best thing) in which to shake the bees from the sections. Next proceed to remove the quilts or cover, and as the bees are exposed give a little more smoke. With a small screwdriver in one hand you prise the sections apart, lifting them out one by one, and holding each firmly in both hands, as with a sharp downward jerk you shake the bees off into the box already mentioned. A feather from a goose-wing will remove any stragglers, and as each section is cleared of bees it may be placed safely in the closed box. By the time the twenty-one sections are cleared there will be a good number of bees in the box, and you will then observe how many of them are young ones, which, if shaken on to the ground, would never find their way back to the hive, but perish where they were. First get your sections safe indoors, then carry the box of bees back to the hive, and if a board is fixed up in front they may be thrown in a mass on to it and allowed to run in. Don't mind the seeming upset about the hive; all will soon quieten down, and when the cloth has been removed from the top and the cover fixed firmly over it, all will go on as before.

It has taken some time to describe your operations, longer than it will occupy you in performing them; but if all I have said is carefully attended to, two or three experiences will enable you to do it all both quickly and well. I have, however, known a bee-keeper of long experience be so unfitted by nature or habit for taking honey from bees that he always causes an upset, irritates his bees dreadfully, and with usually only one hive to operate upon, makes it quite a nuisance to be near while he is at work; whereas we have, as you know, often to take honey from between thirty and forty hives, and there is very little confusion indeed, and no annoyance at all. Sometimes if a neighbour is employed at garden-work close by, we tell him of our intention to take honey on a certain day, and he will arrange to keep away from close proximity to the bees while the work is proceeding.

In my next and concluding letter I will give you instructions how to close the year by preparing your hive for wintering.—M. C.—*Co-operative News.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts* (*see 1st page of Advertisements.*)

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

CURING FOUL BROOD.

[306.] I have not troubled you with any communication for a long time, during which I have been in the worst sort of apiarian trouble, a virulent outbreak of foul brood having carried off my whole stock of twenty hives. How they went matters little; away they went, one after another, some making a longer, some a shorter fight with the disease. This season, early, I purchased six hives from an apiary in which foul brood existed, in order to make experiments with formic acid and any other remedy that might be suggested. Of the six hives I purchased, only one was without disease, as far as I could see, and two hives had it badly. These I united, keeping the least bad of the two queens, though both were bad enough. At intervals, and guided a little by the weather—that is, taking advantage of any favourable warmth—I dosed all the hives with formic acid, giving at first doses of from one to three ounces of Draper's 'B' brand. Before writing of my other hives, I will briefly give the history of my bad hive. After uniting and giving the formic acid I noticed an improvement. Many cells were cleaned out, and there was a good increase of young bees; and though there was still a great deal of foul brood, the population seemed increasing fairly fast, till five bars were quite crammed. I was much away from home, unfortunately, at this time, and, the weather being bad, the next hive took to robbing the weak neighbour, and quite cleared out their honey, and killed a number of the old bees. On my return I found the hive very strong with young bees on the five bars, but fighting vigorously, and with a heap of slain before the door. Of course I stopped the fighting, narrowed the door to the smallest possible limits, and began feeding freely with syrup, to which formic acid had been added in the proportion of one spoonful to each quart of syrup. The queen, however, must have sustained injury in the fight, for she stopped laying entirely, though she seemed active enough. As soon as I got a swarm I removed her, and added the swarm with its queen. The latter was from a hive where the disease existed in a very mild form. Yesterday I opened the hive, and examined it

carefully, and I must say I was gratified at the appearance of bars that a few months ago would have been pronounced fit only for the flames. Very few concave cells remained, and there were plenty of healthy capped grubs hatching out. But the most remarkable thing was the quantity of healthy-looking unsealed brood, laid by the new queen. I should have mentioned that for some reason, best known to herself, she did not lay for some time after coming into the hive; for so long, in fact, that I was beginning to think she was useless. But she has made up for lost time, and now the hive is full of brood, and strong and active. Of my other hives, the one which had no disease at the beginning of the season, together with its swarm, is still free from disease, though both have had combs added that had been in diseased hives. Of course I disinfected them as well as I could with sulphur fumes. My remaining three hives have thriven and given me some surplus in this very bad season—one forty pounds, and the others twenty-one pounds apiece; and I have had four swarms, very large ones. I have now eight stocks, all strong and healthy; and I cannot but admit that formic acid, if it has not quite banished the foul-brood disease with a 'Heigh! Presto!' has at least so worried it that I feel, with a renewal of precautions next season, I may hope not to see my garden denuded of bees as it was this spring, before I made my purchase of the six hives. It seems fair to claim for the acid such strong disinfecting powers that it destroys the tendency of the disease to spread: and as it is injurious—given in moderation—neither to bees nor to honey, it has the advantage that one can continue its use all the summer, during the time when there is the best chance of curing the hives.

Now a word as to application. I believe that in a district where foul brood is as prevalent as it is here, bee-keeping cannot be successfully carried on without the constant use in the hives of a disinfecting preventative agent. Bees in hollow trees, old roofs, walls, &c., all have the disease, and by robbing have both contracted it and carried it where it did not previously exist. This, and the possibility that wild bees have it, disposes of the usefulness of any 'stamping out' or 'Act of Parliament' remedy. You cannot muster all the bees of a district for examination as you can the cattle and sheep. And, if you exterminated all the infected hives, the remaining healthy stocks would be at the mercy of the free lances from hollow tree or ruined wall. I therefore argue that in an infected district the scientific bee-keeper should use a hive which can at all times, with the least possible amount of labour, be subjected to the action of some disinfectant of the nature of formic acid. I find it very inconvenient putting it into the end comb or into an empty section—inconvenient and troublesome, and sometimes impossible in the honey-flow without a good supply of empty combs. I added on to six of my hives a sort of annexe, divided from the hive by a fine iron-wire grating, impassable to the bees, but through which the acid vapour easily penetrated. This, though good enough during a trial of the acid and very easy to manage, had some difficulties of its own; so I am going to arrange a change in my hives which will permit of the addition of a comb for formic acid only, which can be easily got at by me, though inaccessible to the bees, whether the hive be supered or storified, and by means of which I can from time to time give the hive its disease-preventing dose. To treat the hives easily and quickly at all times needs a change in their structure.

There is so much trouble about from this foul-brood disease and its rapid spread—probably largely due to the use of bought foundation, a quantity of wax from diseased hives finding its way into the market—that I will not apologise for sending, at length, what I hope may be a cheering experience to many who have suffered as I have. And I will add one suggestion. Perhaps our fellow bee-keepers in England may think it worth their while, as we have done in Ireland in our Bee-keepers' Association, to appoint a sub-committee to procure all the information they can on the subject of the disease, and to carry out *experiments* as to its cure. I may mention, in regard to my own experiments, that my first action was to make it a matter of certainty that the disease in my hives, and those of my neighbours, was the genuine bee-plague. Otherwise I felt my experiments would be pronounced valueless, if successful.

I may mention, to conclude my letter, that I have diminished my doses of formic acid, giving yesterday from one to two ounces only, and the maximum amount to none but the very strongest hives. By the end of the season, I estimate I shall have given about one-and-a-half pounds of acid to each hive — perhaps a little more—not a very heavy tax on my profits per hive. I intend now, to give my apiary every chance, to re-queen six of my eight hives with queens guaranteed from a district free from disease. I trust this may help some bee-keepers who are as discouraged as I was at the beginning of the year.—F. W. Currey, *Member of Committee, Irish Bee-keepers' Association.*

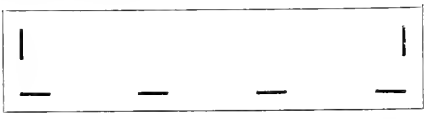
PORTABLE BEE-HOUSES.

[307.] Being desirous of making a bee-house, I was pleased to see the minute and intelligible description for making an octagonal portable one given by 'H. W. T.' in your issue of July 31st (letter No. 281). I have only had three seasons' experience in bee-keeping, but have always understood that hives, as far as practicable, ought to have a southern aspect. If this be a correct idea, I cannot see how the house alluded to can be suitable for the proper accommodation of seven hives, as stated.

Previous to seeing the particulars given by your correspondent, I had a thought of erecting a house to hold two tiers of hives, the whole of which would stand in one position, and therefore give each an equal chance of working suc-

cessfully. Not knowing which design to decide upon, I will feel greatly obliged if you would kindly favour me and other readers with your opinion as to which of the houses you would prefer.—J. A., *Haltwhistle*.

[It must be borne in mind that our correspondent 'H. W. T.' had in mind the designing of a portable bee-house in sections, whereas you made no mention of requiring a house in which these features are included. For a permanent structure it might be preferable to adhere to the orthodox 'south front only' for the hives to face; or they might be ranged along three sides of an oblong-shaped house, thus:—



with four hives along the south front and one at each end. In no case, however, would we tolerate two rows of hives, one above the other; working stocks in that way is a nuisance.

With a house on the octagonal plan we would work five stocks instead of seven, as proposed by 'H. W. T.,' leaving the north panel for door, and reserving the space on each side of it for other purposes.—Eds.]

TWO SEASONS' EXPERIENCE WITH CARNIOLAN BEES.

[308.] Being favourably impressed with the good accounts I read in the *B. B. J.* and other papers of Carniolan bees and their doings, I was prevailed upon, two seasons ago, to give them a trial in my apiary. I procured my strain direct from Mr. Benton, and very soon found they were excellent breeders—very prolific indeed they were the first season—and without waiting to test their honey-gathering qualities, &c., I at once decided to Carniolanise my apiary (then consisting of about twelve colonies). Into these Carniolan stocks I inserted whole frames of drone comb, and quickly had any amount of drone brood, and eventually drones, at the same time suppressing the black drones as much as possible. I soon had a Carniolan swarm, from which I saved seven nice young queens, and all got safely fertilised, and most of them purely, I believe—all of which I placed at the head of stocks. I felt much gratified with my success thus far, although I certainly was not quite satisfied with the honey harvest from the Carniolan stocks, but concluded the honey deficit was owing to my running them for increase chiefly. This season, however, has completely turned the scale. These Carniolans this spring bred up excellently; I never saw bees increase in strength so fast—they looked just like 'honey by the cwt.' But alas, about the third week in May my troubles began. Out they came, one after another, and sometimes three or four swarms at once. So they have kept on almost incessantly right up to the present time, and to-day (August 8th), looking over a *second swarm* of them, I found many queen-cells containing eggs and grubs, and the large hive full of bees and brood, but not a sealed cell of honey to be seen. Nearly every hive of them is in the same condition as regards honey, while my old black stocks—standing side by side with them—almost without exception are beautifully supplied with sealed honey for wintering, and some have given a few sections.

I have never before in my five years' bee-experience received half so many stings, or had one-tenth the percentage of swarms as I have this season from these foreigners. I have given them almost unlimited hive-room, but nothing could I think of to do to stop their perpetual swarming. I have cut as many as thirty-seven perfect queen-cells from one hive of them at once, and fourteen from one single frame. Swarm after swarm has come off without leaving an ounce of honey in the hive. If they have one redeeming quality it is their wonderful breeding powers. I do not wonder at dealers in bees recommending and praising them. No race, I should think, could possibly suit better where *bees* alone are wanted. I freely admit I may have got hold of an exceptionally *swarmy, stingy, useless* strain, but I am very much inclined to think they are a fair sample of Carniolans as a race if we could get truthful accounts of them from *honey-producers* and not *bee-sellers*.

In writing this I am not in the least prejudiced against the Carniolan bees, but simply give *my* bitter experience with them as a warning to others who may be going in for this race to any extent, as I noticed a correspondent in the query column was a short time ago, and whom the Editor very kindly advised to be content with re-queening *half* first. I fully endorse Mr. 'U. H.'s' paragraph on foreign queens in *B. B. J.* of July 31st.

I look upon this introduction of Carniolans into my apiary as the greatest calamity that could have befallen it next to foul brood, and am forthwith determined to rid myself of every vestige of them, and 'teach them never to come here no more.'—M. T. W.

APPLIANCE DEALERS.

[309.] The writer of No. 300 in your last issue, after going over well-trodden ground, makes a very pointed thrust at myself in his allusion to 'the unwisdom of the man,' and also ventures to hope for an 'end soon to this controversy.' Can the end possibly come about when a writer hides behind a standard of *self-written modesty*, and gives utterance to that which will keep things on edge, without the redeeming feature of making any effort in the way of saying how the troubled waters may be stilled? It is the most unmanly thing possible to pointedly refer to any person and then, with *assumed modesty*, to ask you to 'withhold my name from the public.' If such a one considers himself 'worthy my steel' let him come openly, and more especially so when he further puts a stigma upon the contributions to your columns of any individual, other than himself, as '(inter-

ested?).' Your correspondent is quite right in supposing that associations are 'for the purpose of promoting the interests of bee-keepers:' but won't those interests suffer if no rivalry is brought to bear on our show-boards? Legitimate it may be to give prizes for articles at set prices, but when competition is running against the moral interests and the well-being of a community or an individual, would it not be good policy to endeavour to devise a remedy? and more especially so in this case, when the very existence almost of our national bee-keeping is at stake, in that our national 'Royal Agricultural Society' may, from want of representation at 'royal' shows, withdraw its patronage. If 'An Appliance Dealer,' whoever he is, will come to the front and participate in an exchange of views on our shows in a spirit which 'thinketh no evil,' some good may be done, and it will facilitate the work of the B. B. K. A. Committee when they meet to draw up the show schedule for 1891. I can plainly see that it will work no good to British bee-keeping if show patronage, on the part of manufacturers and dealers, becomes individual rather than collective. In conclusion, we appliance dealers are always open to a (I hope sometimes unmerited) thrust as to our motives in writing to the *B.J.* We are supposed by our charitable (?) critics to have an interested motive in all we say. Well, that is our misfortune, not our fault. But does not your correspondent 'protest too much,' and make a rather quiet bid for a free advertisement himself by his allusion to 'formic acid' and 'cheap sugar?'—JOHN H. HOWARD, *The Model Apiary, Holme, Peterborough.*

WEBSTER'S SUPER CLEARER, ETC.

[310.] I find this a most valuable addition to my bee-appliances. It bears out all that is promised of it. For an old fellow like me the brushing off of bees from sections was an intolerable bother. And now none of the sections are spoilt by the cappings being nibbled—one's best sections perforated. I was almost inclined to be angry. I wish I had many more sections to take. With a carbolised cloth all is easy.

The season has been wretched here. In some parts of the country it has not been so bad. I was judging the honey at a horticultural show near Norwich a few weeks ago, and I was surprised at the exhibits, they were so good. Last week I was advertised to manage the bee-tent at Knapton House, near this, and in spite of all that had been said against it I see that to make the thing a success you must 'drive.' I showed a lot of gear, amongst other things 'Webster's super cleaner.' Mr. Howard, the engineer at Messrs. Colman's works, thought it a very clever implement.

I see that my friend Booker-Hill speaks of the yucca as a bee-plant. A few years ago I had one with flower-spike some six feet high, and several hundred blooms. There is a sort of exudation on the surface of each bell-like bloom, and the bees were always on them. The scent is delicious. It is necessary to saw off the part that has bloomed; it is of no further use. After a time I destroyed my plant. The sharp points of leaves are poisonous. A man in my employ pricked his finger with one, and could not work again for more than a week. His arm was dreadfully swollen. I made a drawing of the plant when in bloom, and of the flower-stalk I made a walking-stick. I measured it just now; it is more than a yard in length, very hard and slight. The American balsam (so-called here) is no use as a bee-plant. I have some hundreds in blossom, and I have never seen but two honey-bees on it.—J. LAWSON SISSON.

[It is a peculiarity of the giant balsam (which we suppose is the plant referred to) that it receives but little attention from hive bees until late in the autumn. Our correspondent will find his bees busy enough on it next month, unless it be that he is growing the plants too close to give them a proper chance. They should be planted at least four or six feet apart, one or, at most, two dozen plants being sufficient for a large garden.—EDS.]

CHAPMAN'S HONEY-PLANT.

[311.] If any of your readers have about a dozen seedlings of the 'Chapman honey-plant' or 'giant thistle' to spare, and will send them to me by post, I shall be happy to forward a quantity of white Arabis in exchange. I have a single specimen of the former now in bloom, and it is frequented by the honey-bee from morning till night.—J. WARD, *Middle School, North Malvern, Worcestershire.*

BEES IN THE ORKNEYS.

[312]. I enclose some heads of clover, with a few other flowers that I find growing here in abundance. The clover crop is just splendid, both in the fields and roadsides. I never saw finer, nor such a quantity.

There are no bee-keepers here excepting the one at Kirkwall, Mr. John M. Slater. I have a line from him, in which he says he has increased from two to five, having had three swarms. He does not report about honey. I expect to see him before I leave Orkney; should he come to this side he will give me a call.

I see there is to be an agricultural show in September. It has been reported to me that bees have been tried on the hills at Stromness, but the winter proved too wild, and they died out, possibly for want of proper feeding up. The gentleman who had them was a landed proprietor from Elgin.—W. GOODALL (*of Brighouse*), *Daisy Bank, Stromness, Orkney, August 4th.*

A YEAR'S BEE-KEEPING.

[313.] Perhaps an account of my progress in the art of bee-keeping may be of interest to beginners like myself. I began in the autumn of last year with four driven stocks, which I wintered safely in two hives—one wood, the other straw. The bees in the wooden hive had six frames of empty comb given them, and

three frames of foundation; they rapidly stored sufficient to winter on, and came out very strong this spring; they were supered early, and have given me ten sections; and there will be several pounds more honey in the unfinished sections. They have not swarmed, and are very strong indeed.

My straw hive only just managed to winter. Early in March I suspected that something was wrong with it, so turned it up. It contained very few bees—I should think not much over a pint—and very little comb. I don't know how they had managed to come through the winter. Of course they had been regularly fed in the autumn, but as I afterwards found not rapidly enough. I at once began to feed with warm syrup, and made a wooden case to cover the skep. This enabled me to cover the feeding-bottle up very warmly. The food was regularly taken, and they began rapidly to strengthen. I examined it a few days ago, when I found it very strong indeed, with a nice amount of honey. I joined it with another driven stock, transferred into a wooden hive as much of the comb as I could, and filled up with foundation. I hope to have it a strong stock for next year's work. I also bought a stock early in May, which threw a swarm early in June. I drove the old stock a few days ago, united it with another driven stock, and hived both on wired foundation, the combs being too crooked to transfer.

Though I have so little honey I have gained experience which may enable me to reap future benefits, and so am content.—NORTH NOTTS.

DUNDEE SHOW, 1890.

[314.] After reading the report and list of awards at the above show in your issue of Aug. 7th, I am not a little disappointed to find that Scotland on her own ground has allowed the premier prizes and all the honours to cross the border. True, the season has been an adverse one to bee-keepers all over the British Isles. At the same time it cannot be denied that Scotsmen are behind their English brethren in the production of honey. Judging from a report I read in a local newspaper some time ago, of a certain bee-keeper in the South of Scotland taking off well-filled sections in the month of May, one would reasonably expect Scotland ought to have been represented in the honey classes at Dundee, considering the claim of her 'being able to hold her own in the bee-keeping world.' This claim has yet to be established. Ample opportunities will be given at the show to be held at Castle Douglas on the 4th September next, for both extracted and comb honey. If our English friends figure as prominently there as they did at Dundee, I will then be sorry to admit the fact that Scotland is behind her neighbours in the production of honey.—JOHN D. MCNALLY, *Laurencetown, co. Down.*

[Seeing that the honey season has been more or less a failure all over the North of England and Scotland, we cannot attach any significance to the fact of Southern bee-keepers carrying off the prizes at Dundee. It has been merely a bit of good luck in catching the best of the weather at a time when bloom was about. Our English bee-keepers will be the first to admit that it was 'luck' that gave them the advantage over their Scottish brethren. —EDS.]

YORKSHIRE AGRICULTURAL SHOW.

(From our Special Correspondent.)

This show has now become so important an event to the agriculturist that, in point of entries and the amount of prizes, it takes rank as one of the largest in the kingdom, and is, we suppose, surpassed only by the 'Royal' or National Society of England. The entries at Harrogate exceeded by 225 the number at Hull in 1889, which formed a record year for the 'Yorkshire,' while in the class for horses it seems that it ranks as 'the second grandest show the world has ever seen,' being only beaten by the 'Royal' at Windsor in the Jubilee year.

As regards bee-keeping, a reasonable amount in prizes is offered by the Council, besides all the necessary shedding and staging. This year the show was held on August 6th, 7th, and 8th at Harrogate, near Leeds, on the famous Stray (an immense flat pasture surrounding the town). The bee-tent of the Yorkshire B.K.A. was attended by large crowds of visitors, who listened with great attention to the lectures of the Hon. Secretary, Mr. R. A. H. Grimshaw, who was assisted in manipulation by Mr. W. Dixon. One of the principal features of the exhibition of hive manipulation was the taking round of combs, covered with hive bees, *outside* the network, stress being laid upon the fact that although bee-keepers opened hives with such impunity when before the public they were generally careful to use veils at home, and that in the present case the temper of the bees was proved satisfactory before going outside the network and risking the safety of the listeners from stinging.

I cannot help thinking that the continued disuse of the veil in the tent is misleading to the public, who are deluded into a sense of fictitious security attending the working of hives, and get into the way of thinking their own bees are more vicious than those seen at shows.

With regard to the exhibits of honey, it is scarcely necessary to remark the great scarcity of both section and extracted honey, what there was being disappointing in appearance. The Rev. R. M. Lamb and Mr. C. Atkinson, of Tockwith, had some very good honey, but the bulk of the prizes in the honey classes went to Mr. W. Dixon, Beckett Street, Leeds, who also took a third prize for his collection of appliances. In collections of appliances there were several first-class entries. The first prize deservedly went to Mr. W. P. Meadows, Syston, near Leicester, who was run very close by Mr. A. C. Jamieson, of York, to whom was given

second prize. Mr. Jamieson also took the lead in prizes for hives and the first for extractors—curiously enough with the well-known 'Guinea' machine made by Mr. Meadows, who was thus rather paradoxically beaten *by himself*, coming in for second prize. Mr. W. Dixon took the prize for small extractors, as will be seen from the subjoined list of awards:—

Most complete frame hive for general purposes.—1, Arthur C. Jamieson, 26 Colliergate, York; 2, W. P. Meadows, Syston, Leicester. Most complete frame hive, price not to exceed 10*s*.—1, Arthur C. Jamieson; 2, W. P. Meadows. Honey extractor.—1, Arthur C. Jamieson; 2, W. P. Meadows. Honey extractor for sections. 1, William Dixon, 5 Beckett Street, Leeds; 2, T. Lowth, Riseholme, Lincoln. Exhibit of bee-furniture.—1, W. P. Meadows; 2, Arthur C. Jamieson; 3, William Dixon. Novelties or useful inventions.—1, W. P. Meadows; 2, Arthur C. Jamieson. Observatory hive.—1, William Dixon; 2, E. C. Walton, Emmanuel Street, Preston. Exhibit of comb honey.—1, Rev. R. M. Lamb, Burton Pidsea Rectory, Hull; 2, Lady Hawke, Wighill Park, Tadcaster. Comb honey in sections.—1, William Dixon; 2, Rev. R. M. Lamb. Run or extracted honey.—1, William Dixon; 2, W. Richardson, Copmanthorpe, York. Granulated honey.—1, William Dixon; 2, C. Atkinson.

HIGHLAND SHOW, DUNDEE.

SIR,—As there are several 'J. McNally's' in this part, will you kindly mention in *B. J.* that the exhibitor named in your report was John D. McNally, late of Springburn, Glasgow? and oblige—J. D. MCNALLY, *Lawrencetown, co. Down.*

BEE SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

August 20–21.—Shropshire B.K. Association. Annual exhibition of bees, honey, hives, and appliances, The Quarry, Shrewsbury. For prize lists apply to Miss M. E. Eyton, Hon. Sec., Wrockwardine, Wellington.

August 27.—Exhibition of hives, bees, honey, &c., in connexion with the Lancaster Agricultural Society. Prize lists and entry forms from W. Liddell, Dale Street, Lancaster. Entries closed August 6th.

September 3–4.—Lancashire and Cheshire B.K.A., in connexion with the Wirral Agricultural Society's Annual Show at Birkenhead. Nearly 30*l*. value offered in prizes. For schedules, &c., apply Sec. Wirral Agricultural Society, Birkenhead. Entries closed August 15th.

September 3–4–5.—West Cumberland B.K.A. first annual show of bees, hives, honey, window plants, &c., at Harrington. Forty classes and over a hundred prizes. For lists apply E. McNally, Sec., Harrington.

September 10–11.—Derbyshire B.K.A., in connexion with the Derbyshire Agricultural Society. Annual show at Derby. Nearly 15*l*. besides medals and certificates offered in prizes. Hives and appliances open to all England. For schedules apply W. T. Atkins, 6 North Street, Derby. Entries close August 28th.

September 19.—Wigtownshire Apiarian Association. Eighth Annual Show at Stranraer. 12*l*. in prizes for honey. J. Balfour Robertson, Hon. Sec., the Manse of Leswalt. Entries close September 2nd.

PARISH FESTIVALS AND BEE-KEEPING.

The Oldbury Parish Festival and Flower Show (fourth year) was held in the Rectory grounds on Thursday last. A special prize was offered for the best specimens of honey in the comb, open to all bee-keepers living within five miles of Bridgnorth (the honey to be taken without killing the bees). The prize was awarded to Mr. J. E. Roden, Oldbury, Bridgnorth, who also exhibited some Cyprian bees in an observatory hive, and a well worked-out design in honey-comb forming the figures '1890.' The last-mentioned was very much admired by numerous visitors.—*Bridgnorth, Shropshire.*

Queries and Replies.

[187.] *Driving and Uniting Bees.*—I wish to unite the bees from two frame hives and two or three skep hives together in one large hive. I have hitherto signally failed in doing this properly, as one lot of the bees have always turned out the others, stinging them to death. I have kept to the directions given in books and *Journal*, smoked them well, sprayed them with peppermint syrup, and thrown them on a sheet altogether and let them run into the hive, which they seem to do peacefully enough until presently out some of them are turned. I catch any of the queens I can see, and try to leave only one to go into the hive. Ought I to drive them all at once, and put them altogether in a lump and let them go in? Any hints what to do will much oblige, as I can't bear to see them fighting after they are united, as it weakens instead of strengthening the hives.—M. H., *Bentworth, Hants.*

REPLY.—There is no commensurate benefit from uniting so many as five stocks of bees to form one large colony in autumn. It involves the sacrifice of four queens, and by no means ensures a very strong stock in spring. In common parlance, 'the game is not worth the candle.' If the two strongest and the three weakest lots are united to form two colonies, better results will be obtained. We cannot account for your failure in 'uniting' bees, except to say it is probably owing to a lack of force or firmness in dealing with the driven bees. If you once saw

an experienced hand drive a couple of lots of bees into one skep, shake them up like so many peas, and when the whole are well mixed up together toss them out on a sheet, and the poor little frightened creatures run in anywhere for shelter without a show of fighting, you would not think it a difficult operation to get through; but like everything else it requires some practice and experience before success is assured.

[188.] *Recipes for Mead and Honey Cake.*—Will you kindly give me a recipe for making mead, also for honey cake?—HAROLD GRIFFITHS, *Newport, Mon.*

REPLY.—*Mead:*—'Into twelve gallons of water, slip the whites of six eggs; mixing these well together, and to the mixture adding twenty pounds of honey. Let the liquor boil an hour, and when boiled, add cinnamon, ginger, cloves, mace, and a little rosemary. As soon as it is cold, put a spoonful of yeast to it, and tun it up, keeping the vessel filled as it works; when it is done working, stop it up close, and when fine, bottle off for use.' (*From a book dated* 1727.)—*Honey Cake:*—Honey, 1 quart; fresh butter, ½ lb.; juice of two lemons; grated nutmeg to taste. Warm sufficiently to soften the butter, and mingle by hard stirring. Mix 1½ lbs. to 2 lbs. of flour to make a dough stiff enough to roll easily, beat well with the rolling-pin until the dough is compact, make into a sheet half an inch thick, cut into cakes with a floured cutter, and bake on slightly buttered tins.

[189.] *Pollen-bound Combs.*—I shall be exceedingly obliged by your kindly having the two cuttings of comb, taken from a bar-frame hive, examined and reported upon. The hive was of very fair strength throughout the winter, and certainly did well during the spring; but it must have been dwindling for some time without being observed, for the hive was nearly empty the other day, and, as far as I could see, had no queen. I should like much to know the cause of this dwindling, whether from loss of queen or from disease. The colour of some of the deposits in the combs does not appear to be quite healthy, and there is a tinge of red on the comb, which seems not to be all right.—CARMARTHEN.

REPLY.—The 'dwindling' is doubtless the result of loss of queen, as the comb sent contains nothing worse than a superabundance of wholesome pollen. It is evident that after the hive became queenless the bees have gathered a deal of pollen, and in consequence the combs are so filled with it as to become worthless for breeding purposes. When in this condition they should be removed, and new ones built in their stead.

[190.] *Combs for Driven Bees.*—1. How late after September may I delay slinging? 2. Should extracting be done same day as combs are taken out? 3. At the end of September I purpose removing one or two combs from each hive, and giving sheets of foundation instead. Would you do this, and extract the honey from any of the other combs? 4. I propose using the combs removed for driven stocks of bees; would you do this, and should I sling any of the other combs? 5. Will the end of September be the proper time?—and if I make up the number of frames with sheets of foundation, should I uncap the combs?

REPLY.—1. If the object be to build up driven stocks, the middle of September is quite late enough to start. 2. Not necessarily, but it is best to do so. 3. If stocks are more than provided with food a comb or two may be removed, but we would advise great caution in robbing bees of their stores this year; besides, you are not likely to get foundation built out so late unless the stocks are fed liberally. 4. If the combs can be well spared it is a good plan to give driven bees ready-built combs to winter on. 5. As above stated, the middle of September is the most suitable time, but if you extract the honey, why ask if you 'should uncap the combs?' You will be more likely to have even combs built on foundation placed between sealed food than if the latter is uncapped and the honey extracted.

[191.] *Insects in Pollen.*—I have enclosed some yellow dust taken from one of my hives. It has the appearance of dry pollen. I have put some under the microscope, and find it full of life. Please say what it is, and how it is produced.—ALPHA.

REPLY.—The dust sent is pollen, which when dry sometimes becomes infected with the insects commonly known as 'pollen mites.' When these little creatures have been 'in possession' for awhile, the pollen is thrown out, or may be shaken from the cells in a fine floury mass, as in your case. The insects are never seen in any but weak hives, or in combs which have been for some time removed from the hives and bees.

[192.] *Salicylic Acid Solution.*—On page 385 of *B.J.* it is recommended to medicate bee-food with salicylic acid solution. What proportion of water to acid is required to form the solution referred to?—J. PELLY, *Foxford.*

REPLY.—1 oz. salicylic acid. 1 oz. soda borax; water, 2 quarts.

[193.] *Wild Bees.*—Enclosed are a few bees dug out of a turf wall here. I would like to know: 1. To what species they belong, also an explanation how the largest one—which presumably is the queen—has no sting: is it not a most unusual thing for a queen? In this vicinity we have a lot of wild bees' nests, and, strange to say, hardly two nests are alike in appearance. The honey taken from the enclosed had a peculiar smack, and not at all like the flavour of honey taken from the ordinary hive bee. Can you say what is the cause? 2. Can wild bees be preserved in little bottles so that they would retain their natural appearance and colour? 3. Could wild bees be naturalised to the hive by cutting a small hole in the frame and inserting their brood? Would

the ordinary bees hatch out the young by this experiment?—J. D. McNally, *Laurencetown, co. Down.*

Reply.—1. The bees you send are *Bombus Lapidarius;* the large one a queen, small ones workers. The drone is often mistaken for another variety because of the peculiar yellow markings on the thorax not possessed by worker or queen. Although they most commonly build in stone walls, they are often met with in such turf walls as you name. Queen-bees *as a rule* have no sting properly so called, or rather the ovipositor is thus named. The honey taken from the nest you speak of would be distinguished by a great preponderance of acidity, and a corresponding absence of flavour and aroma; this is the case with most honey from wild bees. 2. The only way to preserve bees in small bottles will be to fill them up with spirits of wine or methylated spirit. Why not stretch them out (before becoming stiff) with two needles or mounting pins on card, cork, or wood? 3. Efforts have been made to domesticate various species of wild bees, but so far without success: they live and die wild, and the brood will not be reared by hive nurse-bees. As for the specimens sent, no good could result from your proposed experiment, and seeing they are, as usual, infested with very objectionable parasites, we should be sorry to give them house-room in *our* apiary.

[194.] *Size of Frames for Extracting, and various Queries.*—'One in doubt' would be glad to know: 1. The size of frame most convenient for extracting. 2. If there is any extractor that will take Abbott's broad-shouldered frames, and Cowan's frames equally well? 3. If a second box of frames is put over the first, and the bees work upwards for a short distance, sufficient to fasten both frames together, then commence to work on the foundation at top, what ought to be done? 4. If an old set of frames need replacing by new ones, is it better to put them in a body-box over or under the original frames, or is there any other method preferable? 5. If a hive swarms in May, and the swarm is returned after cutting out all queen-cells, would that hive swarm again during the summer?—M.

Reply.—1. A shallow frame 14 × 5½ is considered the best size for extracting. 2. Nearly all cylinder extractors will take either of these frames. 3. If the distance between top bars of brood chambers and bottom bars of surplus chambers does not exceed a bare half-inch brace combs will rarely be built. To remove the difficulty in your case, cut away the brace combs, and adjust frames to proper dimensions by adding a thick bottom bar. 4. Autumn is not the proper season for renewing old or faulty combs; spring or summer is the right time, and the simplest way is to remove the outer combs one or two at a time, and substitute full sheets of foundation instead. 5. It is not at all certain, but swarms do sometimes issue again later on, after having been treated as described.

TITS AND BEES.

I have noticed the letters on this subject which have appeared in your issues of the 4th and 11th inst., and will give you the result of my experience in the matter, having closely observed the habits of birds and kept bees during a long life. My statement may be taken *pro tanto,* but I cannot agree with your correspondents of the latter date. There can be no doubt that both the large and blue tits are most useful birds, and I give them every encouragement by making suitable holes for their nidification in the garden wall, and hanging walnut-shells about filled with suet and sunflower seeds for them during the winter; they are daily in the garden, and last summer both species bred there. For some time I kept several of both species in a large aviary, and habitually collected all dead bees found near the hives, and placed them in the aviary for the birds' food. The large tit seized them at once, and, flying to a perch with one, he placed it between his claws, and first pecked off the head, which he flung away, then the other end of the insect, containing the sting and poison bag, was similarly treated, and the remainder devoured. On several occasions, just as the head and tail were disposed of, a blue tit clung underneath the perch, and very adroitly pecked the delicate morsel from between his friend's claws. Knowing well the oft-repeated rumour of their attacking live worker-bees, which I deemed extremely improbable, I put a few of these several times into the aviary, but in no instance could I induce either species to touch them, and I have a strong impression that were they to do so, they would soon meet the fate of the one stung to death, as described by your correspondent 'Derg.' With regard to the tits pecking at the hives, I have never experienced it: but may it not be that some 'cute bird had noticed that on a bright day in winter, or when the insects were disturbed, their first act—as all bee-keepers know to be the case—was to bring out any bees which have died in the hives, and is it not probable that the bird was on the look-out for these? Tits catching worker-bees on the wing with their claws is quite a new experience, and I think the bird's life in such a case would be of short duration. Flycatchers catch and eat drones to a large extent, but not workers—this I have proved; and I once saw a sparrow settle on the landing-board of a hive and snap up a drone as it was walking in.—A. B. H., *Edinburgh, in 'The Field.'*

Echoes from the Hives.

Kirkhope, Selkirk, N.B., August 11th, 1890.—I don't think that an 'echo' from this district has ever appeared in the *B. B. J.,* though your journal is pretty extensively read here, so I venture to give a short report of matters apiarian here, if worth inserting. In the spring of this year appearances were very bright indeed,

and losses were few, if any at all, after such a mild winter. Swarms were quite common from the straw hive—which is now becoming the exception—during the latter half of May, a thing quite unprecedented in this locality; but with the 'merry' month ended all the cheering prospects. What with rain and dull and cold weather bees have had a sorry time of it all during June and July, and to keep stocks from starving it has been one continuous feed! August, however, ushered in better weather, but yet hives do not make at all satisfactory progress. I have nearly forty hives, and I don't think that in one individual case have the bees made a start in the supers. This is rather discouraging when one sees acres of clover in full swing. Hitherto—excepting '88, of course—I have been very much in advance of this, though I depend almost entirely on the heather for any surplus. My average per hive in past years has been about forty pounds or so, the greater part of which was secured well on in August. This year I shall be pleased if expenses are cleared, and not at all disappointed if the return be *nil*, the heather being very much a failure, with bloom neither abundant nor healthy. It is rather discouraging to young hands to have two bad seasons following so close to each other, with all the accompanying outlay for feeding, and I am afraid that in this district a few who have been, by the success of one or two, induced to start bee-keeping, are beginning to think it is not worth the candle. Ligurian and Carniolan have both been tried pretty extensively here, and in every instance have had to play 'second fiddle' to the British brown bee. Hybrids, again, have shown good qualities, which are more than counter-balanced by their bad ones. I have experience of foreign imported queens, and have come to the conclusion that my apiary will be better without them. It is quite refreshing to notice from your editorial that one individual in the island, at least, has had exceptionally good luck. Let us hope that August and early September may favour us with a fair amount of sunshine, and thus give an average of 'from twenty to fifty pounds'—that which your disheartened correspondent expects.—W. B.

Church Stretton, Shropshire, August 16th, 1890.—Not having seen an 'echo' from this part, I thought I would just send you word how we are getting on here. I am in about the same fix as a good many more of our bee-keeping friends, not much honey, though not so bad as some by what I learn from your valuable *B.J.* I have some twenty stocks, the largest number, I believe, for a good few miles round, so you see the bee-fever isn't very high here. Most are kept on the old system. Since I have commenced I have driven a great many stocks which would have had their quietus in the sulphur pit. Though the season has been a bad one, it is not nearly so bad here as '88. I hadn't one atom of honey that season, and scores of swarms died of starvation, but haven't heard of one dying this summer in this neighbourhood. From four of my best stocks I have taken about twenty one-pound sections each, and the others will have plenty for wintering, and haven't fed since spring. I may as well say that out of about twenty stocks driven in '88, I didn't find one to exceed twelve pounds at the time of driving, and I don't think they would average five pounds each. That season broke up many old bee-keepers, as they couldn't believe that bees were starving in July. My bees last year gathered plenty to winter on after this date, though we are, I dare say, more than two miles from the heather. I can't say the bees went so far, but they got the honey somewhere. Weather very bad again for the bees, cold and windy, with occasional heavy rain. I may also say foul brood I have never seen, and don't particularly wish to. It is enough to hear of its ravages without any nearer acquaintance.—P. JONES.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

E. RUSSELL.—Tate's No. 1 brand is undoubtedly a good sugar for bee-food, but there are cheaper kinds mentioned in our pages which answer equally well.

G. LYON (Hastings).—The honey sent is, we should judge, from blackberry and late flowers of various kinds. Its poor consistency and flavour is largely owing to the wet season. If sold in the sections it will only bring a low price.

TOM (Acton).—The sugars sent will do for bee-food, but not so well as some others. No. 2 is not suitable for dry-sugar feeding; we have tried a similar kind and it failed. Refer to *B. J.*, p. 369.

CHAS. J. KIRK (Tunbridge Wells).—For information on Punic bees, refer to *B.J.* for June 5th last, p. 271.

SYLVESTER SOUND.—The heather sent is the genuine honey-plant, but it should be borne in mind that to produce well it should be grown on high moorland. Low-lying, damp heather districts produce very little honey, no matter how luxuriant the bloom may be. You cannot plant heather for bees to do any good. It must grow in acres, not in small patches.

NOTICE.—We would ask our correspondents to take notice of the removal of our office, and request them in future to address all communications relating to the literary department, &c., to 'The Editor of the "BRITISH BEE JOURNAL," 17 *King William Street, Strand, London, W.C.*'

West Cumberland Bee-keepers' Association, 1890.

FIRST EXHIBITION, to be held at HARRINGTON, September 3rd, 4th, & 5th. PRIZES to the value of £25 are offered for HONEY, HIVES, BEES, FLOWERS, &c.

Special Classes for Ladies, and Boys and Girls.

Entries close on August 23rd.

For Prize List, &c., apply to EBENEZER McNALLY, *Secretary*, HARRINGTON, CUMBERLAND.

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BEE-TENT. For Terms apply to A. J. BROWN, Hon. Sec., Wotton-under-Edge District B. K. A. 227

Irish Bee-keepers' Association.

LECTURES ON MODERN BEE-KEEPING will be given, by kind permission of Mrs. GOODBODY, at Obelisk Park, Blackrock, near Dublin, on Tuesday, 26th August, at 12 noon, 3 p.m., and 6 p.m., illustrated (with perfect safety to the audience) by manipulations of living bees. Lecturer, Mr. C. N. WHITE, First-class Expert of the British Bee-keepers' Association.

At the same place and on the same day will be held

AN EXAMINATION FOR EXPERTS' CERTIFICATES,

beginning punctually at 1.30 p.m., and concluding not later than 3 p.m.

For further particulars apply at once to Hon. Sec., HENRY CHENEVIX, Greystones, Co. Wicklow.

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THE MANAGEMENT OF STRAW SKEPS. Designed to teach the Cottager how to obtain the best results at the least possible cost. Price 1*d.* Ditto in Welsh, 1*d.*

WINTERING BEES. By THOMAS W. COWAN. The most complete work on the subject of Wintering published. Third Edition. Price 3*d.*

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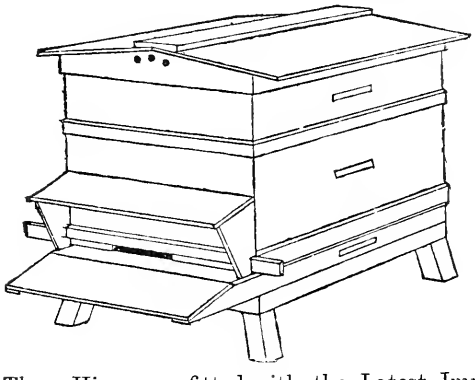
CHARLES T. OVERTON.

I BEG to inform Bee-keepers that I am still holding a Large Stock of AMERICAN SECTIONS of all Sizes, and all Orders can be immediately executed.



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OVERTON'S W. B. C. HIVE,

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OVERTON'S ROCHESTER COTTAGE HIVE.

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THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

No. 427. Vol. XVIII. N.S. 35.] AUGUST 28, 1890. [*Published Weekly.*

Editorial, Notices, &c.

USEFUL HINTS.

Weather.—The sunshine which has been vouchsafed to us came too late, we fear, for much hope of benefit from it. Some very fair returns have been secured, however, in a good many places of which accounts reach us, and we cannot finally fix upon 1890 as an all-round failure. A large number of stocks have apparently gathered food enough to winter on, and we earnestly hope that readers who attach any value to our advice will do no 'stripping' of brood nests this autumn. The oft-repeated adage, 'The game isn't worth the candle,' will apply with more than usual force in this case, for the bother of extracting a few score pounds of dark honey—difficult to turn into cash—together with the attendant risks of arousing the robbing instincts of our bees, make up a combination of sound reasons why the scanty amount of honey in many stocks should be left untouched by the bee-keeper. The bees will be all the better for it, and taking all things into account, it may be said their owners will save their labour and be none the worse in pocket.

Bees at the Heather.—So numerous have been the inquiries as to bees and the heather, and for instructions on moving bees to the moors, that we may anticipate a very large amount of success or failure will result. Quite up to the date of writing bees are still being moved heatherwards, and a Yorkshire moor-man has just assured us that they are 'doing well' on the ling, and advises all and sundry who are the possessors of powerful stocks to hurry them up without delay if the journey is within anything like reasonable distance. Heather honey in the comb should bring a good price, and seeing the amount of trouble involved in moving bees to and fro, an even fairly remunerative figure will be not less than one-third higher than sections have been selling for this season. In view of the fact that stocks are still being forwarded to the moors, we reprint on another page part of an article on the subject by our late colleague, 'W. R.,' which will be found both useful and reliable for reference.

Feeding-up.—This very necessary operation will soon be in full swing, and to be well done should be *carefully* done. After a complete examination of each hive has been made, comb by comb, and full particulars have been gathered as to the internal condition of each stock in the apiary, a general cleaning-up and scraping away of all propolis, bits of comb, and *débris* of all kinds should be carried through before the hive under manipulation is closed up; and as the results of the investigation are written down as work proceeds, the operator carries away with him in his 'notes' every particular required to enable him to deal with the stock without upsetting the bees again more than the usual preparing for the winter necessitates.

After the removal of surplus chambers, and this general autumn examination of hives has been gone through, feeding should begin without delay, and be carried through as most convenient, according to the number of colonies to be dealt with, and the time on hand in which to do it. If only a few stocks are to be fed, wide-mouthed, strong glass jars, holding three pounds, may be had for twopence each, and with a piece of coarse muslin for a covering, the syrup may be given from these at the rate of six or eight pounds per week; or, if slower feeding is desired, a covering of thick twilled calico will reduce the rate of supply to half that quantity. Where time is an object, rapid feeders of the Canadian type must be used. With these we never trouble to remove quilts or place the feeder direct on top of frames, as some do. Each of our hives is furnished with 'top boards,'

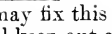
i.e., three pieces of half-inch wood; the centre one 16 × 6 in., with a 1¾-in. feed-hole, and each of the outer pieces 16 × 5 in. When using rapid feeders we merely uncover the feed-hole, and set the feeder on the centre board. No difficulty is experienced in getting the bees to the food if given warm, and a spoonful is poured down among the combs before placing the feeder in position. Food in autumn should always be given in the evening about dusk, so that all excitement caused among the bees being fed may subside before morning.

ABOUT BEE-KEEPING.—VII.

By the Wife of a Bee-keeper.

(*Conclusion.*)

Dear M.,—We left off in my last with the season of honey-gathering ended, the surplus chamber removed, and the bees settling down to work for the remainder of the autumn, on diminished stores and a rapidly decreasing brood nest—for queens gradually cease to lay eggs in quantity as autumn draws on, and natural supplies of food cease. If you will lift the skep (floor-board and all), its condition for wintering may be approximately ascertained. It may be fairly heavy, it may be very light, but in either case you should leave the bees until about the third week in September, when 'feeding-up,' if necessary, should commence. Supposing your skep weighs twenty pounds gross, including bees, combs, hive, floor-boards, &c., we may assume it to contain seven to ten pounds of honey; and to make this quantity sufficient to last the bees until the beginning of March next year, will involve an outlay of two shillings for sugar—twelve pounds of white crystallised sugar, at twopence per pound—to which is added six pints of water, which will make nearly eighteen pounds of food, and this quantity will carry the hive well and safely through the winter. Some narrow-minded people have been known to grudge the outlay of a couple of shillings for food to hives, from which they have taken from ten to twenty-five times its value in honey, and yet they call themselves lovers of bees! But to proceed. The sugar and water require boiling gently for about two minutes, and when removed from the fire you must at once, while hot, stir in a couple of tablespoonfuls of vinegar and a teaspoonful of salt. To give this eighteen pounds of food to the bees as rapidly as possible, procure a large, wide-mouthed glass bottle. You can get one to hold four pounds of syrup for as many pence. Fill this bottle quite full, and tie tightly over the mouth a piece of coarse muslin. When giving the food, remove the covering to the opening in the top of skep, and puff in a little smoke to drive the bees down, and invert the bottle. See that the syrup does not run (as it will not if the bottle be rapidly inverted), and set it mouth downwards in the opening, then, with the half of a newspaper at hand, crumpled into the form of a thick roll, wrap the latter round the neck of the bottle so that the shoulder rests on the roll of paper, which, if properly fixed, keeps the bottle from falling and prevents the escape of bees. If the syrup be given slightly warm the bees will soon take down the food, and the feeding must be continued without intermission until the desired quantity of syrup is stored in the combs below.

When feeding-up is completed, nothing remains to be done beyond refixing the cover over the feed-hole, and laying a folded sack on the top of the hive, after which careful measures must be taken to protect the skep thoroughly, so that in all weathers it will be kept dry and comfortable, without risk of being blown over or damaged by winter storms. After this is done, the less the bees are disturbed the better for the next five or six months. You should, however, to prevent mice from making their way into the hive in winter, cut a piece of perforated zinc a little longer than the entrance, and about an inch wide; in this make an opening one inch long and three-eighths of an inch high, so  With a few wire pins you may fix this firmly across the entrance, and it will keep out all intruders.

During the long winter months it may be necessary to remove this narrowed doorway occasionally, and with a hooked wire draw out any dead bees from inside the hive which may have accumulated there: but beyond this, as I have said, the less disturbance the better.

I have now carried you through the work of a year's practical bee-keeping, and if you find it congenial to your tastes as well as having derived pleasure and profit from the elementary stage, I will ask you to go beyond this form of keeping bees, and try the bar-frame hive next season—in fact, to get a frame hive ready for your first swarm in May or June next. You will then have overcome all the preliminary difficulties which beset beginners; and the use of a hive that you can open and inspect at will, bringing into view all the wonders of that nursery, storehouse, manufactory, and workshop, with its myriads of industrious occupants, will yield you new delight, and make bee-keeping more enjoyable than ever.

I have purposely omitted all mention of the methods of manipulating frame hives, preferring to leave that portion of the subject until you have seen how you 'get on' with a straw skep, and have had some experience of bees; but if you find yourself sufficiently interested, and desire to proceed further, I shall be very pleased to put you in the way of managing frame hives. As you know, my own personal experience has been almost entirely confined to the latter, for we seldom have a straw skep about the place. And so I will conclude my not very cohesive series of letters 'About Bee-keeping' with a hearty desire that you may become as fond of the pursuit as I am myself, and that you may realise as much genuine happiness and pleasure from your connexion with it as I have.—M. C.—*Co-operative News.*

A NEW JOINT FOR HIVE-MAKING.

Mr. T. Bonner-Chambers sends us a section of a box put together by means of a mitre joint and a metal corner-piece, the latter being bent in such a shape as to hold the woodwork firmly together at the corners without the necessity for nailing. The idea is to adapt it for hive-making.

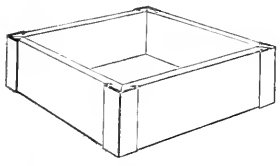


Fig. 1.

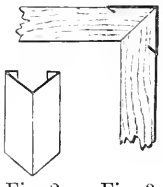


Fig. 2. Fig. 3.

A glance at the sketch will make it plain. Fig. 1 is the box put together; Fig. 2 the metal corner-piece which binds the woodwork at the corner; and Fig. 3 is a sectional view of the joint with corner-piece fitted.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 1st page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

THE BEST TIME FOR MOVING BEES.

[315.] Last season I sent a few notes under the signature of 'A Hampshire Vicar.' Since then I have moved from my old Living to another, and have moved my bees with me. It is touching the removal of bees that I now write to you. I have seen many questions lately as to the best time to remove bees, and as my ideas on the subject do not quite agree with some of those most in vogue, I should like to ventilate the matter a little.

The stereotyped answer to questions on moving bees is, 'Do it in the winter.' I humbly question the wisdom of this, because however carefully moved there must be a certain amount of shaking which agitates the bees, and causes them to take honey more freely than they need in the cold season. They have no chance of a cleansing flight, and many get dysentery. Then, again, any displacement of combs could not be set right by the bees in the dead season.

Last autumn I asked a bee-master of many years' experience when I had better move my bees. He replied with *Punch's* world-known answer, 'Don't.' Some years ago he moved his bees some thirty or forty miles by rail in the winter. They went by luggage train, and next season he had a terrible outbreak of foul brood. He was never able to trace it to any contagion, and, strange though it may sound, attributed it solely to the shaking about the bees had on their journey. It appears to me that if the move be made when the bees are able to set their hive straight after arrival, and get a good cleansing flight, the result will be satisfactory. Having thought this out, I determined to wait for a fine spring day when bees could fly. On the evening of March 13th perforated zinc was securely nailed over the flight-holes. The hives were tied round with rope. Having been well packed in the autumn I had no fear of displacement of frames, &c. Early on the morning of the 14th a cart took them to the railway station. After a railway journey of five-and-twenty miles they were placed on their new stands, the zinc removed, and the bees very soon busily engaged in carrying in pollen. I think that my results in this unusually bad year will show that the move did not hurt the bees in any way. There were four hives. One of them swarmed, and had the swarm returned after cutting our queen-cells and removing sufficient frames of brood to form a new stock. From the four old hives I have taken 186 pounds of section honey, and they are now full of bees and honey, and the new stock is also strong.

I should like much, Mr. Editor, to hear what some of your experienced readers say as to the time of moving bees, and whether the old idea of the winter being the best time may not want modifying.—HAMPSHIRE RECTOR.

[By far the *safest* reply to the query, 'When is the best time to move bees?' is what our correspondent terms the stereotyped one, 'Do it in winter.' At the same time, like everything else man has to do, much depends on the 'man.' And herein lies *our* difficulty, for, with some thousands of readers, of whose temperament, aptness for bee-work, or experience, we know absolutely nothing, our replies to queries must be framed on the safest lines for the general reader. We know (1) that confining bees to their hives under certain conditions means death to them. We know also (2) that in certain months of the year hives are full to overflowing with bees, brood, and honey, while the outside temperature is so high that only by constant 'fanning' can the bees keep down the heat of the hive interior, and prevent the combs from melting down, even when on their ordinary stands. And (3) that at other seasons strong stocks may be moved a hundred miles while the bees undergo almost no disturbance at all. Bees judiciously prepared for the journey might travel in the winter sometimes with the entrances left open, for after the first slight moving caused by handling the hives they seem to remain quiescent, and not in the least disposed to leave the hive. This is what we have *seen* and know to be the case.

Having regard, therefore, to the first of these three propositions, our endeavour must be directed to advising the best means of avoiding the risks involved when moving bees long distances, and, with all respect for our reverend correspondent,

we say, 'Do it in winter.' At the same time, if there is a season when in the hands of a judicious bee-keeper bees may be moved safely, it is a mild day about the middle of March. That is just the time when, if the question were asked and the date named, we should reply, '*Do it now.*' The population is then about at its lowest, the combs are light of stores, brood-rearing is only fairly begun, and the condition of the stock is very favourable for its safe removal. There is only one other time when, in the hands of the bee-keeper of whose knowledge and ability with reference to bees we know nothing, it is safer to move them, and that is when there is practically no brood at all in the hive, and no risk of over-heating, viz., winter. In view of maintaining confidence in the soundness of replies to queries in the *B. J.* (which we have much pleasure in knowing is entertained by our readers) we have entered at some length into the matter of our esteemed correspondent's letter, and as the important question of foul brood is referred to, we trust readers will dismiss from their minds the idea of the rather inaptly named 'bee-master' that foul brood was brought on by his having 'moved his bees some thirty or forty miles by rail in the winter.' We take the full responsibility of saying that such an idea is absurd.—EDS.]

REMOVING BEES TO THE MOORS.

[316.] The district in which I reside is only a very indifferent one for a clover harvest; sometimes there is a year in which a fair yield can be had, but, like angels' visits, they are 'few and far between.' About the most that can be done is to build up strong stocks for the heather, which I have with no small amount of attention been able to do fairly well; but the stronger the stock, the more difficult, I find, is the removal to the moors, which, in my case, are about thirty miles distant. In former years, when my stocks were neither so numerous nor so strong, I could take one of the river steamers and arrive at my destination in safety; and in an average season could look for a few pounds of honey about mid-September—say, about twenty or twenty-five pounds per stock, sometimes very much more, but oftener the reverse.

I have of late been using bar-frames more, and find their removal exceedingly difficult; in fact, last year I lost one of my best stocks, and two others were rendered all but worthless, while two straw skeps got to their destination in fairly good order. That, I may say, was owing to my doing the journey by road, on a light lorry, packed with straw underneath and hives well ventilated both above and below with wire gauze, and travelling for the greater part by night. I did not go along with the cargo myself, but strict injunctions were given that the horse was to *walk* all the way. Whether that order was obeyed or not I cannot tell; but this I do know, the result was anything but satisfactory, as already explained.

Now, as it is all but my only chance of a honey harvest, I should like very much if I could alight on some safe mode of transport by road, in my case, if possible. Some of your readers must be in the habit of removing stocks to 'pastures new,' as in my case, and I should like to know how it is gone about. Here is the proposition or 'selected query,' as I should have it stated:—'How to remove strong top swarms on ten standard or twenty shallow wired frames (combs about six weeks old), at end of July, for a distance of twenty-five miles?' Of course additional room could be given either below or above, or anywhere the remover might fancy, for be it understood supers are supposed to have been removed and the bees crowded into the brood chambers, which might be of the above dimensions.

Would it be possible to arrange some light boards on springs or indiarubber, which might be placed on the top of a lorry, and fastened by screws or otherwise, which could be easily removed? Or, provided the vehicle was one's own, the bees might just be allowed to stand on it; and perhaps some ingenious reader could introduce a steel balance into the springs, and the happy owner could take a turn up to his stocks and have a look what weight they had made him, prior to 'running it out' at 1*s.* per pound. Happy prospect, eh?—AUGUSTUS, *Sandyford, Paisley, N.B.*

[Our friend, the late Mr. Wm. Raitt, who had considerable experience in moving bees to the moors of Scotland, a year or two ago wrote the following very plain and practical instruction, which appeared in a former number of our monthly, the *Record*, of which he was then co-editor, and may serve as a reliable reply to our correspondent's query:—'1. Prefer hives without legs; they pack more safely and economically in the cart or waggon. Our own only occupy a floor-space of eighteen inches square. 2. Any time within a week of lifting, examine all the frames, removing those containing honey only and replacing with brood from stocks to be left. 3. Fix all frames so as to make them absolutely immovable. Broad-shouldered frames weighted down with supers or upper storeys may do without further fixing; but narrow-ended frames even with distance-pins should have wedges dropped between their ends. The wedges we use are cut in three-inch lengths from bars of wood half an inch square, some less, some more. A small wire nail is driven close to one end so as to form by its projecting head a hook which catches the rabbet on which the frame rests; the last pair of wedges must be chosen of such size as firmly to jam all together. 4. Supers should if possible have outer cases similar to the hive-body below. They can thus be firmly secured from sliding about. Instead of sectional supers we frequently use upper storeys of newly built combs, such as have already passed through the extractor preferred. These upper storeys, with the hive and floor-board, are all secured together by laths nailed up the four corners. 5. Cover the top with loosely wrought scrim, secured by strips of wood nailed round the four sides so that it is impossible for a bee to escape. The usual quilts may be replaced over this scrim both before and after removal, but during the journey the scrim alone should form the covering. 6. At the moment of removal close the doorway by a strip of wire cloth fastened first to a lath of wood so that two short wire nails serve to secure it. 7. Set the hives in a cart or waggon on two inches or more of straw or hay, place wads

f the same between the hives and the sides of the art to prevent rocking, and drive as fast as you please when the roads are good and the springs easy. 8. Preferably travel at night or early in the morning, locate your stocks on their new stools, and after all are set and quilts and roofs replaced, go round with a feather dipped in carbolic acid, with which to streak the wire cloth a moment before removal. In this way there will be no rush of bees on the doorway being opened. After-treatment will depend on the nature of the season. If honey be abundant it may be necessary after eight or ten days to remove surplus honey and give more storage room. If scarce, it may be good policy to give less room, leaving only one set of sections where there were two.

'As all supers and upper storeys may generally be removed before the bees are taken home, the latter is comparatively an easier process than taking them away. The weather is cold, the combs are already secured, and the whole are less bulky than before. The same precautions as to ventilation should be observed, and a further opportunity is given on their return of making any desired changes in the location of hives, or of uniting any nuclei or weak stocks to the hives brought back.'—EDS.]

APPLIANCE DEALERS.

[317.] With your permission, Mr. Editor, I ask space for a few words in reply to the writer of No. 309.

What can the gentleman mean by, or what meaning will others put upon, his declaration that he did not go to a show because he did not expect to find anybody there 'worthy of his steel?' If he had any such expectation, he must have had some grounds for it, and the only grounds that suggest themselves to my weak intellect are, that 'No. 309' acted in accordance with a preconcerted plan agreed upon between himself and others. The advertisement reads like a covert assertion of this sort. Is this wise? An open assertion of the same nature was made some few weeks ago in your pages to be promptly contradicted—and wisely so—by the firms who were said to have entered into the compact. I would remind 'No. 309' that bee-keepers through the medium of their Associations can very well do without dealers, but dealers cannot do without bee-keepers and their Associations, and for dealers to throw down the gauge of battle is, well—*not wise*. The unwisdom of such a course is still more apparent when the entire blame for the facts which have given rise to this controversy lies solely and purely at the door of the dealers. 'No. 309' asks me to come forward and participate in an exchange of views in a spirit which 'thinketh no evil.' Allow me, Mr. Editor, to state my views at once, that 'No. 309' may see that I certainly 'think no evil.' In the first place, I am entirely opposed to a conference with a view to raising prices or limiting the individual action of traders. Experience has taught that attempts in this direction are utterly futile. Second, Who is mainly responsible for the unprofitableness of the appliance business? Certainly not the old, respectable firms who were the pioneers of the trade, and who still stand high where others have disappeared, It is so comparatively easy to set up a business in bee-appliances, that a large number of people in various trades have rushed into the arena, misled by the activity displayed by the B. B. K. A. and affiliated Societies into the belief that a new El Dorado in the way of trade had been discovered, only to find that after all is said and done bee-keeping is, and probably will remain, only a minor industry, in which the field for money-making is more than limited. But John Bull, when he once begins a thing, is slow to own that he has made a mistake, consequently these new traders, finding their home market too small, at once made every effort to extend their operations, meeting, however, at every turn and corner their *confrères* from every quarter of the kingdom. Then Greek met Greek, and the tug of war began, with the result we know of. How is the evil to be remedied? Only by time and patience. Let it be known that dealing in appliances is not a royal road to fortune, and fewer will embark in the business. Let the dealers heartily co-operate with the Associations and bee-keeping will extend; with its extension will come increase of business, with increase of business greater prosperity. Possibly in the future dealers will not be so eager to compete for prizes—there is a limit to human ingenuity and to human purses; but shows need not on that account be a failure for the want of a display of appliances—at least I know that *our* county show will not be—for if our prize list should not draw such a competition as we hope for, I assist our committee by making such a display as compensates for the absence of others; and being on the spot the expense to me is trifling; and I would recommend other local appliance dealers to act upon the same lines. I am also one of the new hands at the business, but I did not go into it with a view to making bee-appliance dealing a mainstay of my commercial ambition. I simply took it up a few years ago at the suggestion of our honoured and Honorary Secretary, to assist members of our Association in obtaining promptly, and at reasonable rates, such articles as they stand in need of. If my fame has travelled further than this it has not been entirely my own doing; but being now one of the 'dealers,' I view with concern anything which must tend to lower rather than to raise us in the estimation of our clients; and a wrangle over the prize schedule of 1891 with the Committee of the B. B. K. A. cannot have, to my mind, a very elevating effect.

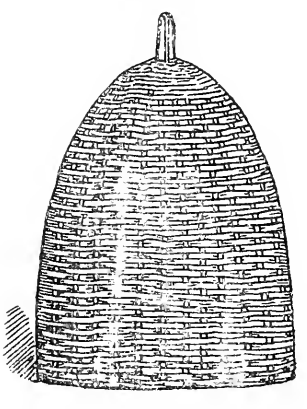
As regards the 'mock-modesty' with which I am charged, I would remind 'No. 309' that my name has not appeared, and will not appear, at the end of any article from me connected with trade or trade appliances. To write on bees proper, with signature attached, is as permissible to a dealer as to any one else; but when we are treated to columns of matter in the pages of bee publications, extolling the merits of special hives, sections, &c., written and signed

by the inventor and dealer, it has always struck me that such space could be more interestingly filled by the editor himself, and that the right place for the laudatory and explanatory effusions would be the advertisement columns, at so much per inch!

In conclusion, sir, you are quite at liberty to give to 'No. 309,' or to any one else who may think himself personally aggrieved by what I have written, my full name and address, to enable the aggrieved person, if so disposed, to continue the controversy *in private*, as I herewith make a solemn vow, that after this I will not take up any more of the valuable space of the *B. B. J.* on this particular subject.—'No. 300.'

BEE-KEEPING IN THE PYRENEES.

[318.] I was very sorry not to have seen you before we left. You will no doubt have heard how well our bees have behaved: some 216 pounds by the middle of June. One hive gave 62 pounds. It is wonderful to see what new interests bee-keeping gives, and new opportunities of usefulness. Here I find that bee-keeping is in a very primitive condition. My nephew has some bar-frame hives; but though very strong in bees, they seem not to finish the sections rapidly, in fact, very slowly. Is there any cause for this? He is anxious, also, to know how he can save his bees in spring from destruction in a neighbour's hothouses. Numbers of them get in, and never get out again alive! Could anything be done to lessen this danger? On the Monday after our arrival he and I went off to an English tutor's, who lives among 'the Coteaux,' to help him with a hive he had, the bees of which he wished to transfer into a proper hive. This native hive is a curious affair. It is made of wicker-work, daubed with cow-dung, and with a handle at top, as in sketch. As Mr. Thomson had no skeps, we had to invent something into which we could drive the bees. The wicker hive was a long and narrow affair, which would not stand in a pail when turned upside down. We got a waste-paper basket, sewed a bath towel into it, dabbed a little honey in it, set to work and managed it, at last, pretty fairly I think. We are going to see other hives soon. Mr. Thomson needs a new queen, I am sure. To whom should he apply in France? The wax here is nearly white, very different to ours, and the honey is not nearly as good.—A. F. Buscarlet, *Pau, Basses Pyrénées, France.*



BEES IN ORKNEY.

[319.] I noticed a communication in the *B.J.* last week from W. Goodall, in which he states that there are no bee-keepers there except Mr. John Slater, Kirkwall—that is, eighteen miles from where the writer dates his letter; but in his leap of eighteen miles he passes over two apiaries of about fifteen hives. Bees were first introduced into Orkney about twenty-five or thirty years ago by the late Mr. Scarth, of Binscarth, but after a few years they died out. As far as I know, I was the next who took bees to these islands, under the advice of the late Mr. W. Raitt. It is now four years since that apiary was established at Fluns, Hurroy, Orkney, and they have done remarkably well, especially in the year 1888, which was one of the driest seasons experienced in Orkney for many years. I think that if correspondents to the *Journal* would read more of the bee literature of the country they would be better able to send you authentic reports, a summary of bee-keeping in Orkney having appeared in the *Record* for the month of July this year. I noticed in a letter by 'A Lady Bee-keeper' in the *B.J.* that a minister in one of the north isles of Orkney had inserted an advertisement in some of the local newspapers. I get both the papers published in Orkney, but did not notice any such advertisement, nor did any of my bee-keeping friends in Orkney. I would be glad if the lady bee-keeper would state in the *Journal* which paper it appeared in. I am very sorry it was overlooked, as I would have been glad to have replied to the rev. gentleman's advertisement.—A. G. M'Glashan, *Kirriemuir, Forfarshire, N.B.*

A CHEERING REPORT.

[320.] Yesterday I went to the north side of Hertfordshire to drive some bees. The owner told me that he began this spring with four stocks in skeps; they had increased to sixteen, and I took over two and a half hundredweight of honey from the twelve stocks that I drove. He had before this taken off a ten-pound bell-glass full. I left him four strong stocks for next season, from which I did not take any honey.—Geo. J. Buller, *Welwyn, August 19th.*

BEES ON RAILWAY JOURNEYS.

[321.] I have just returned from a short holiday in Lincolnshire, and as is my habit I kept a look-out for beehives along the line of rail on the journey down, but after travelling over 300 miles up and down, only saw hives at four places, viz., at Finsbury Park soon after starting, then at Burgh, next at Little Steeping, and finally at Cheddlethorpe. So strongly do my inclinations 'lead me' that if the train had been my own 'special' I would have stopped it for the pleasure of a chat with the owners of the hives I saw, but as it was not, I could only roll along again and look out for more beehives.

I pity our friends mentioned on page 390 of

B.B.J. under the heading 'War.' It would be interesting if a further account were 'continued in our next.' I should also like to prove whether the prolific Carniolans referred to in last week's *B.B.J.* (308), would be as successful (?) in my garden as in that of your correspondent.—H. C., *Canbury Park.*

SNAKES ABOUT HIVES.

[322.] While out on August 1st driving and uniting bees, I had what was to me a novel experience. I had done all my driving but the last lot, on top of which was a bell-glass covered over with a skep, and on removing this, to my great surprise (and I must say annoyance, for I hate such reptiles) I found a snake curled up round the bell-glass and very loth to move until compelled to do so; in fact, Mr. Snake only moved nearer the stand until again forced to leave by a stick. My opinion is he was there for warmth, but I find since that snakes eat beetles, &c. Have they ever been known to eat live bees, or would they eat only those brought out of the hive dead?—JOHN PERRY.

[Some small snakes do eat flies and other insects, but we have never heard of them preying on live bees. Perhaps some readers have had experience of them, and will kindly report.—EDS.]

TWO SEASONS—A CONTRAST.

[323.] I would say a word as regards the season here. I say 'season,' but I think the past few months, usually called the 'season,' can hardly claim such a designation. What a trying time to bee-keepers! Clover and allied flowers in abundance, but too cold and wet for our little friends to work them. They were getting on fairly well at the end of May and early in June, then again for a brief period after middle of July; but I ought not to complain, considering how phenomenally well, for me, I did *last* year.

Briefly the two seasons stand thus:—From six stocks, 1889, nearly 700 lbs. of comb and extracted; my largest stock, having a young queen and worked on the 'doubling' principle, gave 225 lbs.! From about same number, 1890, I have the grand sum total of 78 lbs. to record, but, as I have said, I must not complain, as I have left all of them sufficient food to winter upon, or at least with very little feeding in a week or two. The most worked of all bee-flowers here are clover and the limes.—AMATEUR NATURALIST, *Grantham.*

THE SEASON IN EAST GLOUCESTERSHIRE.

[324.] Seeing the rather dismal accounts of this season's honey crop in the *B. B. Journal*, I hasten to give you my report. One of your correspondents states it to be 'worse than that of 1888.' This is by no means the case with myself. In 1888 there was not a drop of honey taken in this neighbourhood, and scarcely a colony that had not been fed freely survived the winter. My apiary dwindled from eighteen in the autumn to eight stocks in May, 1889, through dying out or becoming so weak they had to be united, although one and a half hundredweight of sugar was used in feeding.

From twelve stocks (spring count) I have taken this season 133 saleable sections and 219 pounds of extracted honey, rather dark in colour, but of good flavour and exceedingly dense. I succeeded in preventing only three stocks from swarming; one of these, on forty frames, was only kept at home by extracting forty pounds in June, all well-ripened honey (I have taken fifteen pounds more during the present month of August from it), leaving as near as I can guess a dozen pounds in brood nest, to which I have added twelve pounds of syrup, and this, with about five pounds of dry sugar, puts them ready for winter. Another, with fourteen frames and sixty-three sections on, built comb on the front of the section racks; the other yielded forty-six pounds of extracted honey. These are not *guess weights*, but all carefully scaled. I have now twenty-two colonies which, when the weak ones are united, will leave about eighteen strong stocks for the winter, and these will need somewhere about one hundredweight of sugar to bring them up from twenty to thirty pounds each for stores. They will then be packed away until April, unless there is good reason to think they are queenless or short of stores. I ought to state that my place here is a perfect bee-elysium, nearly a mile from any house, surrounded by pollen-bearing willow, furze, pasture, bean and sainfoin fields, &c., sheltered on north and east by a thick coppice of low bushes, and a shallow stream running near. The nightingale sings around the hives in spring, and the bee-orchid blooms later on. Truly a rustic spot:

'And I said, if there's peace to be found in the world,
A heart that is humble might hope for it here.'

My honey was gathered chiefly from winter beans, of which about 150 acres were growing within a mile of the bees, but the weather kept them at home too much to render a good account of their advantages during the first year of residence, but I hope for better things next year.

I have been a bee-keeper since 1884 only, but the 'fever' has been with me all the time, except abating just a little in 1888 and the spring of 1889; but now it is raging strong as ever, and no one loves their bees more than myself.

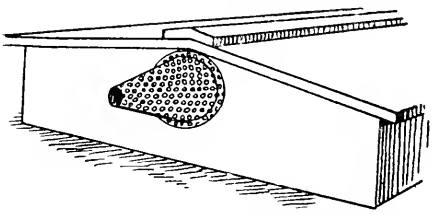
I have never tried the foreign varieties, being well satisfied with the natives, and have never seen foul brood. In 1887 and 1889 I had stocks that yielded over one hundredweight of honey each, and in the latter year averaged over half-hundredweight each, besides enough to carry them on to April. When about to move the bees I read the elaborate accounts in various bee-books 'how to do it,' which almost frightened me, for I had little time for nailing each frame, &c., so I merely tacked a little perforated zinc over flight-hole, and made floor-boards safe,

leaving frames and covering as the bees had fastened them for winter, put them in a spring-cart with a little straw under and between them, then trotted six miles over rough country lanes in the dark, pulled off zinc in the morning, and examined them a few days after: not a queen was missing, and the bees appeared none the worse for their shaking. This took place early in April, and in *cool weather*, or doubtless they would not have travelled so well.

I have found one or two tall rows of peas planted some yards in front of hives prove capital swarm-catchers when circumstances permit. They usually settle some way up the sticks, then I hive them on the shady side if possible, spreading a cloth with skep tipped up on a brick, pull the stick or sticks carefully over the front of hive, and give them a shake, push the stick in place again without damaging the row. I never knew a swarm pass them, or decamp from the well-shaded hive afterwards. Nearly every swarm this season settled in one low bramble-bush; there were several low bushes near, but this was the favourite spot. I have found bees winter equally well in double or single-walled hives, but think that warm covering, a water-tight roof, and as little disturbance as possible, with plenty of stores and a young queen, are the chief considerations.—EAST GLOUCESTERSHIRE.

A SIMPLE SUPER CLEARER.

[325.] After reading in last week's *Journal* the admirable article 'By the Wife of a Bee-keeper,' and the instructions given therein for clearing supers of bees, I wish to draw your readers' attention to a little invention of mine, which has answered admirably, and those to whom I have supplied the little article are loud in its praise. The thing itself is simply a small cone made of perforated zinc. The *modus operandi* is as follows:—Take off the roof, detach the perforated zinc usually fixed over ventilator holes, and affix the cones outside the roof over the ventilator holes, point outwards, as in the



sketch. Now take the super off the hive, place it on the ground, drive the bees with carbolised cloth or smoker off the top of bars of brood chamber, and cover up snugly with your ordinary quilts. Over all replace the super, take off all coverings from the latter, and replace the roof with funnels over the holes. In a very short time the bees will begin to leave the super through the funnels and re-enter the hive by the ordinary entrance. According to the state of the weather, it takes from twenty minutes to an hour to completely clear the supers, and the bees never find their way back again through the funnels. Any one can make the contrivance for himself at a cost of a few pence by simply bending a little perforated zinc into a funnel, leaving at the small end an aperture just large enough for one bee to crawl through. Fifty or a hundred hives may be operated upon at once with less disturbance, loss of bees, and stings than is the case in clearing a single super in the old style. I send you, Mr. Editor, a couple of the funnels for trial.—A DEALER.

[No doubt the contrivance will answer the purpose very well.—EDS.]

CARNIOLAN BEES.

[326.] It is pretty cool of 'M. T. W.' (page 401, No. 308) to send you his two seasons' (one really) experience with Carniolan bees, and to ask for the experience of others, with the proviso that he does not want any reports from 'bee-sellers,' *i.e.*, persons who have taken an *interest* in them and made them a study. 'M. T. W's' account of them reminds me of the man who bought a steam engine, and after he had filled the boiler with water, and the fire-box with coal, because it would do no work was disgusted, and decided that his donkey would beat a thousand of such new-fangled things.

Carniolan bees are different to all others, and require quite different treatment. Moreover, the race is not a fixed one, as they vary very much in every point, particularly in swarming, colour, and temper; they will all certainly work and gather honey, but who ever expects to get a lot of honey from a hive after throwing off ten or twelve swarms, or even two swarms?

It is no use my pointing out where he erred, because *bee-sellers* are to be tabooed.

I may, however, be allowed to say they certainly will gather honey if the swarming fever is kept down, and I would suggest that your correspondent inquires for the best plan to keep it down. One plan, I would suggest, is to get some Punic blood into them. Another plan is to face the entrances as much north as possible, and shade the hives well, so that the midday sun does not unduly excite them. I will give him my opinion on the secret of their swarming propensities, and it is this:—They are the most excitable race of bees I know of, and owing to this peculiarity, they are easily frightened into what is called 'tameness,' while really, if gently handled, like Cyprians, they will 'lick creation' in stinging.—A HALLAMSHIRE BEE-KEEPER.

DESTROYING WASPS.

A Warwickshire farmer, writing to a contemporary, states that he has this year caught no fewer than 21,170 wasps in bottles dressed with hot water and sugar, cider, and beer, with treacle rubbed inside the neck.

NATIONAL CO-OPERATIVE SHOW AT THE CRYSTAL PALACE.

The National Co-operators had a great day at the Crystal Palace on Saturday, the 16th inst., amid gloriously fine weather, their interest being demonstrated by an attendance of over 35,000 members of the various co-operative societies in all parts of the kingdom, many of whom travelled long distances in order to participate in the great annual gathering. Now that our friends the Co-operators have taken permanently to bee-keeping, and have made a display of honey exclusively by bees belonging to members of their various societies a feature of their show, we feel peculiar pleasure in recording in our pages the fact that the annual gathering was this year a substantial and gratifying success.

Passing through an enormous collection of flowers, fruit, and vegetables (all grown by Co-operators) we come to the honey department, and found the display a most creditable one; not very extensive, owing to the poor season, but quite equal to what we have met with at large shows elsewhere this year. Moreover, it in no way suggested that we were among the produce of bee-keepers who did not understand 'showing.' Indeed, we were quite surprised to find everything so thoroughly up to the mark as regards preparing the honey for sale. With a good season and the promoters of the show anxious—as they certainly appear to be—to encourage the bee department by offering liberal prizes, we may expect that this honey show will be a very great success, tending eventually to make it an important 'event' in the yearly list of shows, and as an enormous attendance is always ensured we hope to find a large addition to our ranks through the co-operation of our latest recruits, the Co-operators.

The following prizes were awarded by the judges, Mr. Alfred Neighbour and Mr. W. Broughton Carr:—

Section III.—Class 241.—Collection of honey from one apiary:—1st, Not awarded, 40*s.*; 2nd, F. H. Cudd, Chislehurst, 30*s.*; 3rd, Not awarded, 20*s.*

Class 242.—Comb honey in one-pound and two-pound sections, the produce of one apiary in 1890:—1st, W. Denman, Chelmsford, 30*s.*; 2nd, F. H. Cudd, Chislehurst, 20*s.*; 3rd, T. Duncan, Horsham, 10*s.*

Class 243.—Run honey in one-pound or two-pound glass jars:—1st, S. Bailey, Horsham, 20*s.*; 2nd, F. H. Cudd, Chislehurst, 15*s.*; 3rd, T. Badcock, Gravesend, 7*s.* 6*d.*

Class 244.—Comb honey, twelve one-pound sections:—1st, T. Badcock, Gravesend, silver medal and 15*s*; 2nd, H. W. Seymour, Reading, 12*s.* 6*d.*; 3rd, S. Bailey, Horsham, 10*s.*; 4th, W. Debnam, Chelmsford, 7*s.* 6*d.*; 5th, G. Cole, Braintree, 5*s.*; 6th, T. Duncan, Horsham, 2*s.* 6*d.* Highly commended, W. Nott, A. and H. Association; commended, Mrs. Runcieman, Chelmsford.

Class 245.—Run honey, twelve one-pound jars:—1st, H. W. Seymour, Reading, bronze medal and 15*s.*; 2nd, W. Dance, A. and H. Association, 10*s.* 6*d.*; 3rd, F. H. Cudd, Chislehurst, 7*s.* 6*d.*; 4th, F. Cresswell, Ipswich, 5*s.*; 5th, S. Bailey, Horsham, 4*s.*; 6th, W. Debnam, Chelmsford, 2*s.* 6*d.* Highly commended, W. R. Carter, Salisbury; commended, H. E. Etheridge, Horsham.

Class 246.—Beeswax:—1st, G. Cole, Braintree, 12*s.* 6*d.*; 2nd, T. Duncan, Horsham, 10*s.*; 3rd, T. Badcock, Gravesend, 8*s.* Highly commended, H. Etheridge, Horsham; commended, F. Cresswell, Ipswich, W. Nott, A. and H. Association.

Class 247.—Collection of honey-producing flowers:—1st, H. Cole, Chislehurst, 10*s.*; 2nd, W. Nott, A. and H. Association, 6*s.*; 3rd, T. Badcock, Gravesend, 4*s.*

WROCKWARDINE BEE-CLUB.

The fifth annual exhibition of this club was held in the boys' schoolroom on Tuesday last, and was visited during the afternoon by the *élite* of the district. In spite of the adverse season, the members succeeded in making a very fine display. The classes for run honey were well filled, and competition was very keen, the prize-winners in all cases showing high-class exhibits well deserving the premiums awarded to them. The comb-honey classes were not so well filled, but Mr. Palmer's exhibits were very good indeed considering the season. Mr. Carver showed a hive of elaborate construction and beautiful workmanship and finish. The classes representing the domestic uses of honey, and the manufacture of candy and beeswax, were also well contested, some very fine samples being shown. As usual, the children's classes for wild bee-flowers were quite an attractive feature of the show, and elicited much praise from visitors for their artistic arrangement. The duties of judge were ably carried out by Mr. Burton, of Birkenhead, whose awards gave general satisfaction, and who expressed himself as highly pleased with the club display. In the unavoidable absence of the President (the Hon. Mrs. R. C. Herbert, of Orleton), the prizes were distributed in the evening by Mrs. H. H. France-Hayhurst, and a most successful and pleasant gathering was brought to a close by hearty cheers for her performance of this duty, and also for Miss M. E. Eyton, the indefatigable Hon. Sec. of the club, to whom its success is due. Following is the prize list:—

Club Members.—Best six one-pound sections.—J. Palmer, 1. Six one-pound bottles.—H. Jarvis, 1; John Shuker, 2; C. Clarke, 3. One one-pound section.—J. Palmer, 1; John Shuker, 2; S. Bremmell, 3. One one-pound bottle.—C. Clarke, 1; S. Bremmell, 2; G. Lloyd, 3. Super of any description.—J. Shuker, 1. Best and most complete hive for general use.—J. Carver.

Cottage members only.—Six one-pound sections.—J. Shuker, 1. Six one-pound bottles.—

C. Clarke, 1; R. Grainger, 2; J. Shuker, 3; H. Shuker, highly commended. Best exhibit of honey, half run and half in the comb (not less than twenty-four pounds).—J. Shuker.

Open to all-comers and members.—Best twelve one-pound sections.—J. Palmer, 1; J. Shuker, 2. Best twelve one-pound bottles.—C. Clarke, 1; H. Jarvis, 2; H. Brooks, highly commended. Best made hard candy for feeding bees.—J. Palmer, 1; C. Clarke and G. Lloyd (equal), 3. Cake of beeswax (not under one pound).—H. Brookes, 1; J. Palmer, 2; Mrs. J. Shuker, 3. Best honey drink, not intoxicating.—Mrs. J. Shuker, 1; G. Lloyd, 2; H. Brookes, 3. Best vinegar made from honey.—H. Brookes, 1.

Cottagers only.—Best two-pound cake made with honey.—Mrs. J. Shuker, 1. One-pound pot of preserve made with honey instead of sugar.—C. Clarke, 1; G. Lloyd, 2. Bunch of bee-flowers.—C. Clarke, 1; G. Lloyd, 2.

Cottage children (under fifteen years).—Bunch of wild bee-flowers.—Alfred Bremmell, 1; Vincent Bremmell, 2; George Lloyd, 3; Lucy Lloyd, 4; Bertie King, 5; Herbert Humphreys, highly commended.

Cottage children (under seven years).—Bunch of wild bee-flowers.—Emily Lloyd, 1; Lizzie Humphreys, 2; Arthur Bennett, 3.

Reports of the Goole and District and also of the Wotton-under-Edge District B. K. A. Shows are in type, and will appear next week.

Queries and Replies.

[195.] *Bees refusing to raise a Queen.*—I have two stocks of bees: I want your advice regarding my two hives. No. 1: This one had an aged queen which I destroyed, and upon obtaining a fertile queen from Neath, I introduced her very successfully, and she went on laying well, and very soon, by putting in whole sheets of foundation as soon as other frames were supplied with eggs, got the hive in a seeming prosperous condition; but to-day, upon examination, I detected an unmistakable smell of foul brood, and sure enough there seems lots of it. 1. Would you advise my feeding them with phenol syrup, or suggest what management I should adopt?—My second hive was in early spring a most promising colony of yellow-banded bees that by some means or another got queenless. I removed a frame of brood with queen-cells from another hive, but the queens never hatched; I then introduced a frame of eggs from the hive No. 1 (described above); the bees no doubt carried their eggs into four of the frames which contained worker comb, and by eating away the cells these became drone brood, projecting far above the surface of the comb, but no queen-cells were to be found. I obtained another fertile queen and introduced her, but the bees I suppose would not receive her, at any rate, no results were to be seen; then I obtained a virgin queen which was not received. I have now put in another frame of eggs, and I want to know if I have done wisely or not?—Jas. Partridge, *Barnstaple.*

Reply.—1. Your treatment should depend on the character or malignity of the attack. If very bad indeed (and we cannot, of course, judge without seeing a sample of the dead brood in comb), we always advise total destruction of the stock. If mild in form, you will find so much said of late in our columns that we need but refer to back numbers of the *B.J.* (say last week, p. 399). 2. It is always more difficult to re-queen bees of an alien race than those of the same variety, and if the bees so persistently refuse to raise a queen from eggs, your only course is to *re-queen*, taking special precautions against her being killed, such as caging for two or more days, and watching closely when she is released.

[196.] *Transferring.*—Kindly advise me in the following:—No 1 hive, skep; the parent stock weak in bees, stores enough to winter on. No. 2, skep, top swarm from No. 1 of June 7th, strong in numbers and stores. No. 3, ten bar-frame hive, second swarm, June 18th, from No. 1, on eight frames with starters; present condition, weak in numbers, no stores, two frames completed, three partly. Query 1. Can I transfer bees from No. 2, some to 1 and 3, and all comb to No. 3 bar-frame? I can drive from skep easily, but never can get a sight of the queen. 2. Could I, therefore, cover No. 2, when inverted for driving, with excluder zinc to prevent queen passing up with bees? 3. Is it absolutely necessary to remove the queen of No. 2 before uniting with No. 3? 4. If a foreign queen, with bees, were put into a hive with another queen, what would be the result? 5. In driving, are queens, when seen, caught by the *naked* hand? 6. Can, or do, either queens or drones ever sting? 7. I would rather reduce the number of my hives; but would you advise me to feed up No. 3 and leave the rest alone?—Bee-Fever, *Huntingdon.*

Reply.—1. Certainly, if you know how to perform these operations. You ought, however, to capture the old queen from the skep when driving, and keep her along with a few bees till you are sure the bees have got reconciled to the young queen in frame hive. 2. No, you cannot drive bees through excluder zinc. 3. Not absolutely, but desirable. 4. One queen would be killed. 5. Yes. 6. Queens can sting, as shown by their killing rivals, but they never use their weapon except as above. Drones have no sting. 7. It is just a matter of choice, but it is a pity to have the weakest lot in your only frame hive. We should unite Nos. 1 and 3.

[197.] *A Novice's Queries.*—1. Was not 1887 a good year for bees, and 1888 a very wet and bad one? 2. Will bees driven in autumn work out foundation when being fed up for winter? 3. What is the difference in the size of the shallow frame and the standard frame? 4. Would a box of shallow frames for a ten-frame hive contain the same number of frames as the body-box?

5. Of the two frames, which do you advise me to use to get the most extracted honey? If shallow frames, how many boxes of them ought I to have for each of my hives.—A NOVICE, *Martley.*

REPLY.—1. Yes. 2. Only if they are very strong in numbers and are fed rapidly. 3. The standard frame is $14 \times 8\frac{1}{2}$ ins. The shallow frame, $14 \times 5\frac{1}{2}$ ins. 4. Yes. 5. The shallow frame is now being generally preferred for extracted honey. The number of surplus chambers required depends altogether on your district and the season.

[198.] *Returning Bees from Observatory Hives.*—1. Suppose a comb of bees, with the queen, has been in an observatory hive for two or three days, how should they be placed back in the hive from which they were taken? Can they be put back in the same manner as if they had only just been lifted out, or will they fight? 2. How should they be placed back if they had been in the observatory hive for a week or more?—F. C. PIGGIN, *Hucknall Torkard, near Nottingham.*

REPLY.—1. Just replace the frames and bees as if they had not been away at all. No fighting will follow. 2. When you say 'a week *or more*,' the only question is what is meant by 'or more?' We have returned frames and bees after being away four or five days, and never saw any tendency to fighting: but if a few combs and bees were kept in an observatory hive for several months, as is sometimes done, they would become practically a new stock.

BEE SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

September 3–4.—Lancashire and Cheshire B.K.A., in connexion with the Wirral Agricultural Society's Annual Show at Birkenhead. Nearly 30*l.* value offered in prizes. For schedules, &c, apply Sec. Wirral Agricultural Society, Birkenhead. Entries closed.

September 3–4–5.—West Cumberland B.K.A. first annual show of bees, hives, honey, window plants, &c., at Harrington. Forty classes and over a hundred prizes. For lists apply E. McNally, Sec., Harrington.

September 10–11.—Derbyshire B.K.A., in connexion with the Derbyshire Agricultural Society. Annual show at Derby. Nearly 15*l.* besides medals and certificates offered in prizes. Hives and appliances open to all England. For schedules apply W. T. Atkins, 6 North Street, Derby. Entries closed August 28th.

September 19.—Wigtownshire Apiarian Association. Eighth Annual Show at Stranraer. 12*l.* in prizes for honey. J. Balfour Robertson, Hon. Sec., the Manse of Leswalt. Entries close September 2nd.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication. All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

GREEN ISLE.—We beg our correspondent to forgive us for withholding from print his very lugubrious report headed 'Gloomy Prospects.' Our friend's 'gloomy' epistle is really enough to put bee-keepers in the 'dumps' for a month, and we are glad to know that his dreadfully dismal forebodings are not shared by Irish bee-keepers generally. After assuring us of his having 'so far had blessed immunity from foul brood,' surely there was no need to anticipate all the horrors of 'a scourge which in itself is sufficient, I believe, to doom the business.' No, dear 'Green Isle,' the business is not doomed, and we sincerely hope that next year's experience of bees will arouse a more cheerful spirit within you. Seriously, you must be located in a very bad bee-district, or else have managed very badly, to have so little to say in favour of 'bee-keeping.' Cannot you pay a visit to such an apiary as that of the Ven. Canon Proctor? It would do you good to see what can be done by an octogenarian Irish bee-keeper in Ireland, of whom we are proud.

H. B.—The honey sent is of fair quality. Its colour is worse than the flavour, and it should be quite saleable this year at a fairly low figure (say 6*d.* per pound in bulk); it will certainly be quite 'safe' to winter bees on. Exposure to the light will not alter the colour.

C. B.—We rather doubt the sugar sent as being pure cane, and should use in preference a crystallised sugar of a yellowish shade, containing more saccharine matter, for bee-food.

B. J. (Stourbridge).—The heather sent is the honey-plant, but bear in mind what has been said in *B. J.* as to low-lying, damp moors being unproductive of honey.

C. C. P. (Co. Kerry).—It seems scarcely credible that the country people about you don't know what white clover (the plant forwarded) is, and we find it hard to believe that the dwellers in the Green Isle are quite so 'green' as *that.* If they are, pray enlighten them. The white clover plant is not a shamrock, but the shamrock is one of the *trifoliums*, though not *trifolium repens* (or white clover) the queen of bee-flowers, on which we don't wonder you 'saw the bees working hard at in thousands.'

E. H. BRINDLEY.—The comb sent contains only drone brood in drone-cells. There is no sign of a queen-cell.

*** *Several other communications are held over till next week.*

THE

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BEE-KEEPERS' RECORD AND ADVISER.

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Editorial, Notices, &c.

ADVISING AND BEING ADVISED.

One of the most (to us) satisfactory and pleasing features of bee-journalism is the peculiarly confidential form its correspondence takes so far as matters connected with bee-work go. Not only is this the case, but so large a proportion of readers are perforce constrained to write to the *B. J.* when in difficulties with their bees, and so often is a word of advice and guidance needed, that it would surprise many to know how large an amount of time is occupied in the correspondence department.

We do not complain of this; indeed, our view is that no better form of teaching could be found than the public ventilating of so many different individuals' bee-troubles and apiarian difficulties, alongside of what we always endeavour to make a reliable and simple explanation of the best means of overcoming them.

To our mind it is not possible to convey so large an amount of useful information, and with it so much valuable experience, in any other way, seeing that correspondents present in their own persons just the varying conditions under which the majority of readers would find themselves when placed in like circumstances.

It may be added that if querists will only be a little more thorough in their details when writing, and bear in mind that we have neither their hives nor their bees before us when 'diagnosing,' besides being for the most part in entire ignorance of the practical knowledge or aptitude possessed by them, it will tend to help us very considerably in helping *them*.

We do not pretend to be infallible, or to claim that our advice always meets the case; but the fact of adverse criticism so rarely reaching us conveys the comforting assurance that those who know, or think they know, better than ourselves what should be said in certain cases either charitably pass over our errors without comment, or, bearing in mind the difficulties surrounding the position of adviser-in-general, they credit the *B.J.* with being passably sound on most points, and that it succeeds fairly well in keeping its readers on the straight track.

Such self-satisfaction as may be felt at the general favour with which the *B.J.* is regarded by bee-keepers has, however, been just a little rudely disturbed by the receipt of a gentle remonstrance regarding the policy adopted from a correspondent for whose opinion we have, of course, every respect, and whose motives are not for a moment questioned. We may, however, be allowed to say a word in reply in order that our friend, and those who share his views, may see how matters really stand, and how possible it is to undervalue the importance of keeping a level head on the part of those who have charge of the 'steering gear' in bee-journalism. Though advisers, we are not above receiving advice—and acting on it, too, if the need for so doing is apparent. But to the point. Our correspondent writes:—

'I enclose an excerpt which may do to fill up, and be at least as edifying as Mr. Grimshaw's "Development in the Honey-bee." I am not the only non-evolutionist who takes your *Journal*, nor do I object to any one giving an opinion; but we cannot accept the hypothesis without *some* proofs. I hope you won't consider me impertinent if I also express the hopes of many others besides myself that *ordinary* experiences of beginners or young hands may not take up valuable space: might I suggest that, instead, your county experts and professional bee-men should send you weekly accounts of their doings and experiences, from which you might surely cull much valuable information, particularly as regards foul brood and attempts at curing it.'

The excerpt enclosed along with the above is printed on page 423. It is smartly written, humorous—and having amused us, will no doubt amuse others—but it will scarcely be said that it conveys any useful information to bee-keepers. A not too

considerate allusion is next made to the series of articles on 'Development in the Honey-bee,' now appearing in our pages; but, if reference be made to the opening paragraph in those papers, it will be found that the writer there states that much he says must of necessity be hypothetical, and he leaves his readers to draw their own conclusions rationally. Himself an openly professed 'non-evolutionist,' our correspondent requires '*some* proofs' of Mr. Grimshaw's 'hypothesis.' Is not this a logical impossibility on the face of it? We cannot be expected to *prove an hypothesis!* Anyway, we cannot resist the opportunity of saying that improvement, or advancement, and their opposites, seem to us to be a fundamental law amongst living things, and this appears to be all that is claimed by the writer of 'Development.'

Our correspondent's concluding remarks are partly met in the opening portion of this article, and for the rest we may say the experiences of 'county experts and of professional bee-men' are always welcomed in our pages; but it may be news to our correspondent—as showing how opinions differ—when we say that there are not a few bee-keepers who, for various reasons, will not permit the professional expert to see their bees at all. Moreover, if we were to take the advice he very kindly gives as to what should and should not appear in our columns, we would be likely to experience a very rapid diminution of the satisfaction for which we have already expressed ourselves as not a little thankful.

DEVELOPMENT IN THE HONEY BEE.

By R. A. H. Grimshaw.

(*Continued from p.* 364.)

In the mountains and valleys of Italy, where the honey-bee's travels have been so restricted that the species has had time to show the marked characteristics so familiar to us in the beautiful abdominal stripes, quiet temper, hardiness, and industry of the Ligurian variety, all that could be desired by the lover of bees seems to be present; the easy upward empty flight to the hill-slopes, the equally facile descent into the sheltered vale laden with sweet store; the trembling, transparent air, the acme of purity itself; the sudden burst of bloom, in the very nick of time when the bee, imprisoned by a steady, keen winter, is tempted forth by the life-giving beams of the vernal sun, when the imprisoned seed and root have their icy fetters dissolved by the heat-absorbing soil. Equally at home are the bees of Carniola, Cyprus, and Minorca; indeed, it may be confidently asserted that wherever natural barriers against emigration exist, the honey-bee (as well as any other animal) will acquire, through long courses of years, marked characteristics, distinctive peculiarities, developing and handing these on to posterity (always considering the worker-bee more the child of its nurse than of its actual mother). We find the same thing to-day amongst the honey-bees of Britain. Where one discovers old bee-gardens in such out-of-the-world nooks and corners as our modern civilising steam engine has yet left to us, the good temper, low swarming habits, and domesticity of the bee are remarkable. Should we not, then, look upon the importation of bees from other lands with suspicion—especially when we find such cross-breeding bring in its wake all the evils which disturb the rest and equanimity of the would-be peaceful and happy bee-keeper? 'Demon bees' (well so surnamed), some always 'on the swarm,' and perpetually seeking the tops of the very highest trees in the neighbourhood of home as their clustering-place; others giving us no air-space between the honey and the cell-capping, the latter, too, so thin that bleeding sections are the rule, and not the exception; others, again, so easily excited by the least favourable change in winter that undue consumption of stores and the scourge of dysentery follow. All of them carry along with them the very curse of bee-keeping, foul brood, which has done and will do more to let and hinder our beloved pursuit than the aggregate of all else beside; these are amongst the blessings we are asked to enjoy when using imported queen-bees.

When we import foreign varieties with the no doubt laudable intention of improving our race of bees we are groping in the dark, and interfering so much and so radically with the ordering of Nature that we may not be surprised if she gives us the vengeful fate of an inevitable Nemesis where we least expect it, finding that exactly where we thought we were right we are wrong, that just where we expected a blessing we found a curse.

On the other hand, there is not much room for doubt that the immunity from bee-disease in the years preceding the introduction of the frame hive is in a great degree attributable to the free use of the sulphur-pit in taking honey; those bee-keepers who sulphured the strong prime swarms, kept the old stock and the first cast, would thus ensure the elimination of effete, worn-out queens, and guarantee for themselves an annual supply of vigorous one-year-old queens 'in full profit.' The surest plan for us also of obtaining this one amongst the very few advantages appertaining to the system of bee-keeping practised by our fore-elders, is that constantly advocated by Mr. Cowan, who persists in telling us that if we are to work our hives to the maximum of profit we must re-queen our hives artificially each year, selecting the young queens from stocks or races which combine in greatest measure those points we wish to perpetuate—prolificness, good temper, hardiness of constitution, a minimum of the swarming instinct, and

so on. For the generality of bee-keepers this method necessarily involves a deal more trouble than is agreeable, but where it can be practised it is most desirable.

With those who are disinclined to re-queen to this extent, a good plan is, when evidence appears in a hive that the energies of the mother-bee are becoming spent, to kill the queen outright and insert a comb containing new-laid eggs in the centre of brood nest, leaving them to re-queen themselves, always taking care that there is a probability of there being plenty of drones a fortnight or three weeks after the operation, the presence of drones in a neighbour's bee-garden being of more consequence than in one's own. By paying attention to securing a sequence of young queens, by avoiding too early and too frequent a disturbance of the brood nest, by taking care not to extract too much and too frequently, and by destroying the whole hive, stock and lock, upon the appearance of foul brood, I am convinced the bee-keeper will do more to rid the country of this, its direst and fellest disease, than by applying any or all of the remedies suggested by the art of the chemist.

We were possessed in the old days of a magnificent strain of bees, now no longer, we fear, to be correctly termed 'English blacks,' and these were probably as perfect a race in their way as any of the Carniolan, Ligurian, or Cyprian bees of importation. They had been bred for centuries on just such a peninsula (Great Britain joined to the European continent by the isthmus of Dover) as we have seen fell to the lot of the bees whose perfection we have heard so much praised, for it must not be forgotten that emigration is in the very nature of the honey-bee, and where such migration is impeded by the bees being on a neck of land, by an impassable range of mountains, or by total isolation (as on Cyprus or Minorca), the strain has opportunities to perfect itself, and mature and develop its points and marked characteristics. So in our peninsula (and subsequently island) of Great Britain had our honey-bee developed into an insect admirable at all points, giving us unequalled snowy cappings on its honey cells, great hardihood of constitution, and an evenness of temper which gave birth to many superstitions as to its power of recognising its owner and his family, &c. In fact, there is many a practical bee-keeper to-day who exists in the full assurance that his bees recognise in him a kind, prudent, foreseeing friend and master. Surely a little reflection will convince any such that the careful and provident bee-master is the bee's own direst enemy from first to last (in the eye of the bee). He it is who unnaturally shakes rudely down the clustered swarm, roughly rolls them out again just as they are nicely settled in the straw skep and beginning to work and build comb; then, when all is vigorous, busy honey-gathering, he unnaturally unroofs their home and pours a volume of hot, pungent fumes amongst their storerooms and nurseries.

(To be continued.)

BEES AND THEIR WAYS.

Bees are to be regarded from two points of view—as the exponents of various social and moral qualities, and as honey-making machines. For the moment let us consider them from the former point of view. The opinion expressed by Aristotle, that the humming sound made by a bee is caused by the 'illusion of an inward spirit,' has always seemed to us sound common sense. If a bee is not possessed by a spirit, and an aggravating kind of spirit too, how can her manners and customs be accounted for? There is nothing else in nature so contrary, so persistently fussy and disagreeable, as a bee—unless it be a wasp. The bee is an impostor of the rankest kind; for it has set itself up as an example to youth on just those particular points that are most disagreeable to the young, and it has not really fulfilled its own ideal. People praise bees for their wisdom; but they will enter the same flower six times over and never find out they have been there before. They are credited with prudence; but they will gorge themselves on any poisonous blossom placed within their reach. Universal suffrage, free education, and a free breakfast-table we admit they have, and a number of other things that people will talk about and think they want. What we complain of is the immorality of pointing out to young people of both sexes that the persistent and unremitting fussiness of the bee is worthy of admiration. That bees strain all their energies after acquiring honey all day is no reason why we should do so, or why we should admire them because they don't smoke tobacco or go to the theatre. They don't want to do these things; they would do them if they wanted to. As to their cleverness: they are clever enough to go out for a fly and find their way back to their hive if it is not moved six inches on one side. Shift the hive a little and every bee will fly back to where it started from and stay there. If the hive is moved three feet they will not be able to find it, but lie there and die in the cold rather than look for it. Then as to economy. A bee has no sense of proportion: it will go on storing up honey far beyond what it can eat, and fags itself out every day for something it does not want. A bee has no pleasures, for it is always in a temper about something. The way it swears when it gets into a flower and can't find the way out again is demoralising in the extreme. The only real luxury bees seem to indulge in is fighting. If a strange bee comes to make a call, the inhabitants of that hive sting her to death. As the call is usually made for purposes of robbery, there may be sound sense in inflicting the death penalty; but what of the morality of a nation that keeps organized bands of robbers and employs Lynch law!

Bees are well known to be of the female sex, but not entirely so. The unrestricted female would be too much even for bees. The only perfect female is the queen. Mature consideration has led us to the conclusion that most of

the imperfections of bee-life arise from its too exclusively feminine elements. Drones are at a discount, and are not allowed to vote or to be in the government; consequently the women have it all their own way, and we see what comes of it. A hive is nothing more nor less than a gigantic nursery and store cupboard. The whole energies of the community are concentrated on feeding-bottles and pap. They have no picture galleries, no concerts, no clubs, no art critics, no amusements; everything is brought down to a dead level of industry. Hexagons are employed for keeping honey in because those women put their heads together and found that hexagons took up less room than any other form, and rent costs money. Trust a woman for small economies! A man would have varied the shape a little occasionally — thrown in a cornice or built out a buttress or run up a spire, or something, to get a little variety. Not so the woman; give her utilitarianism. Then as to visitors. A woman doesn't want visitors when she has a baby to attend to, and she does not want her husband to have them either. Bees don't care about news from the outer world; they can make their own gossip for themselves. There is a popular superstition that bees surround their queen when she moves about in order to show due reverence to majesty. Not a bit of it. They are only keeping their eye on her. Fancy the position of that one defenceless perfect woman among so many of her sex who are not as perfect as she is. What scandals there must be about the drones! To show what a life one poor defenceless female has among so many, bee-keepers tell us that the queen is expected to lay from two to three thousand eggs a day for several weeks, and if she does not give the nurses enough to do she is turned out into a cold world to tend for herself.—*St. James's Gazette.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their full names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts* (*see 1st page of Advertisements.*)

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

CARRYING DRIVEN BEES.

[327.] To my knowledge the cruel, foolish, and old-fashioned custom of the brimstone pit is still in use in different parts of the country. Now is the time for bee-keepers to be on the look-out for condemned swarms. I have rescued many, often from far outlying districts, and for a long time the question of transport was always a serious one, especially when the bees had to be taken from a distance.

This was happily solved for me by my friend Mr. John Ogg, Loch Kinnord Bee-farm, Dinnet, Aberdeenshire. I learned from him that the easiest and best way was to place the driven bees in small common *sacks*—two in each sack, by putting one in and tying sack at the middle, and then putting in the other. I found this to be a great success, because with a pole stretched from two stout carriers quite a number of sackfuls could be hung across the pole and carried with perfect safety. I have found Mr. Ogg's idea of such service to me that I hope, for the benefit of others, you will proclaim it in your columns.—G. B. Black.

[We hardly think the plan of carrying driven bees as described is the best. Getting the bees out of the sacks, to say nothing of getting them *in*, presents inconveniences to us which are obvious. As an improvement, buy a dozen washing-powder boxes, or those in which 'sweets' are sold (costing about twopence each), and cut a two and a half-inch hole in each end of these boxes, covering the holes with perforated zinc on the inside. When starting on a driving expedition a string is tied round each box, and six of them strapped or corded together can be carried in each hand by a boy. After each lot of bees are driven they are 'run' into one of the boxes, the string retied, and so on till all the bees are boxed and tied up as before. A man and boy can carry home comfortably two dozen lots of driven bees in this way, and there is no trouble in tossing them out when running them into frame hives.—Eds.]

APPLIANCE DEALERS.

[328.] It is quite possible to put any construction but the right one upon one's words and acts, as your correspondent, 'No. 300,' seems to have done. The exact meaning I intended to convey in my advertisement is this:—At our 'Royal' Shows I have been awarded for appliances two seconds and one first, having only attended three shows, and on such occasions meeting the principal manufacturers, save at Windsor, where two such absented themselves; but there I met the one house who had an unbeaten record at 'Royals,' and I took first honours. Judging that the appliance entries at Plymouth 'Royal' were badly filled, from the fact of my being urged to compete, I considered that no one 'worthy of my steel' would be there, and as business was pressing I declined exhibiting *in toto*. Furthermore, one who can read in my advertisement lines of a 'preconcerted plan' and 'covert assertion,' does not write in the spirit which 'thinketh no evil.' However, 'No. 300' points to one fact, viz., that bee-keepers can 'do well without *dealers*,' but surely bee-keepers would differ from anyone who held that they can do without *manufacturers!* and I judge the commercial relations between bee-keepers and manufacturers will tend to the bee-keepers' interest—and blot out the *dealer* altogether in the end.

Again, 'No. 300' sees nothing in the conference of manufacturers which has been suggested but 'a view to raising prices;' but surely no sound commercial man would foolishly let his hopes run that way, for if persons fix prices they cannot fix quality. One thing, however, a conference of manufacturers could bring about, and that is, a better feeling between themselves and the work of the B. B. K. A., and without 'wrangle' clear the atmosphere so far that no onus may lie at the door of the B. B. K. A. Committee as to the reason why shows were not attended by the manufacturers.

As 'No. 300' still hides his identity I will take no trouble to find out his name and address; but whoever he is I shall judge him wanting in both modesty and honour. In no private manner did he aim his arrows in my direction, neither will I in private take them back into his own border.—'No. 309.'

TWO SEASONS' EXPERIENCE WITH CARNIOLANS.

[329.] Having read the experience of 'M. T. W.' with Carniolan bees, I will give mine. In May, 1889, I procured one of Mr. Frank Benton's first-grade queens, and introduced her to a stock of English bees. On June 14th I had a fine swarm, and a second swarm (or cast) on June 24th. I did not expect much surplus that year, and was content with their gathering enough to winter on. I examined them this spring, and found all well, with plenty of brood. I gave them some thin syrup, and supered them in May, and from these three hives I have taken fifty-eight pounds of extracted and thirty-eight complete sections. I agree to some extent with 'M. T. W.' as to their swarming, and they want more attention than do English bees in the swarming season. As to their being a 'stingy' race, your correspondent's experiences are different from mine. I can handle my Carniolan bees like so many flies without gloves or veil. I can recommend to timid bee-keepers the Carniolan race, and I am no 'bee-seller,' only a working-man bee-keeper.—A. Nicholls, *High Wycombe, Bucks.*

GLAMORGANSHIRE B.K.A. ANNUAL SHOW, 1890.

[330.] I was delighted to see in the *Journal* of August 14th that you had at last reported one of our Glamorganshire shows. Last year we had three capital exhibitions—good entries and good honey, but not a word appeared in the *Journal* about either. Now, I was rather sorry for this at the time, as I wanted our esteemed friend 'East Glamorgan' (late 'Welsh Novice') to see the prize list. If you remember, before the commencement of last season, he sent through your paper a challenge to Mr. Gibbins, of Neath, and myself, and gave us to understand that at the coming shows we were to look out, as he meant to give us a good licking! The shows passed, but where was he? At three shows I won thirteen prizes and medal, and Mr. Gibbins, I think, did almost as well. If 'East Glamorgan' is still in the flesh, I hope this may catch his eye.

I have wandered away from your report of our '90 show. I myself won second and certificate for one dozen sections—and not Mr. Jenkins, as stated in report.

We are hoping for better times next year, as most other bee-keepers are. I have only six stocks this year, which have been very strong, and would have done some execution had the weather suited. My surplus will be about two hundred pounds from the lot. Last Saturday I was examining my bees, and got a sting on my thumb, making me feel somewhat queer, as, although I have had many stings, none had ever affected me like this one. In a short time a rash came out all over my body. My wife becoming a little alarmed, I took a hot bath, and adopted some other remedies, among which I got outside of about a quarter of a pint of good brandy in a pint of milk, went to bed, and in about two hours I had a pint of strong coffee, and got up as well as ever. What do you think caused such an effect?

I am pleased to tell you that bee-keeping is making rapid strides in Glamorganshire, and that we have a flourishing Association, headed by a splendid chairman and secretary, and that our expert is second to none in the country—in fact, he has been rather *too* expert for some of us lately, as he carried off most of the prizes at Cardiff and Aberdare shows, but your humble servant was not competing.—A. H. Sims, *Honeywood, Pontypridd, August 25th*, 1890.

[It is difficult to account for a sting having so unusual an effect on one who has kept bees for any length of time. No doubt the general health of the person stung has a good deal to do with the after-effects of a bee-sting, which usually does no more harm to a bee-keeper than does the prick of a pin.—Eds.]

BEE-PARALYSIS.

[331.] Referring to the correspondence under this heading, which appeared in Nos. 418 and 421, I think the phenomenon is deserving of greater notice being taken of it. My bees were affected with it this summer for the first time in my experience of bee-keeping, which extends over twenty-five years. My brother, ten years my senior as a bee-keeper, was here on a visit at the time when the attack was at its worst, and he was perfectly amazed and nonplussed, as during all his experience he had never seen anything like it. I made very careful examination of hives which appeared all right, and also a careful inspection of the sick and dying bees; I observed they were nearly all affected with vomiting of a dark, treacly liquid, which appeared to completely clog the legs and, to some extent, their wings. Those of them that managed to get to the alighting-board got no further, not being able to walk. They in

most cases got fixed or fluttered off on to the cold earth, where they continued to make attempts to rise, till, overcome with cold, they sank to rest. From the fact that drones were plentiful and on the wing each day, and not one of them to be found amongst the slain, I concluded that it was not from within but without the hive the mischief came, and from some poisonous matter the workers were getting. I found a number of sick bees near and some upon the flowers of a profuse but small-flowering white clematis, which I concluded was the cause. I soon cropped off all the flowers on my plant, but unfortunately there were many others near in full flower over which I had no control. I was further convinced I had traced the origin correctly from the fact that the disease declined and disappeared with the flowers upon these plants. It would be interesting to know if any of these clematis were within the reach of the bees belonging to your other correspondents.—G. B. Black, *Darlington.*

THE SEASON IN IRELAND.

Extracting *v.* Sectioning.

[332.] As the season for 1890 is practically over, I will send you a last echo from these "Burren Hills," and though not quite a joyous note, it shall not be a groan; for, comparing with the misfortunes of others makes even the most wretched of us contented.

Having the charge of several apiaries as well as my own, I was in a position to observe what a great difference there is in localities not four miles apart. For instance, an apiary about seven miles from here gave about thirty pounds from two stocks as early as the 20th or 25th of May, and only four or five pounds per hive since. The next to it lost a stock from starvation in May, yet 'beat the record' later on, one hive yielding forty-two 'bursting' sections; and the bees, indignant at the limits the quilt imposed, ate through it and filled the deep roof with well-filled combs—in all, about seventy pounds. The next hive, owing to the queen getting up, did not do so well, but twenty-three pounds were secured. Not far from this was one of five stocks, and, though white clover and forage abounded on all sides, the return was *nil.* Of my 'lads' I can neither boast nor complain. All wintered well, and were strong in April; I clipped all the queens in frame hives, and though greatly crowded, none swarmed during the season; but from my straw hives I got some during May and June. I supered four hives with sections, and three with boxes of standard frames with excluder zinc. From one of these I extracted fifty-four pounds, from another twenty-two; the third the queen got up in. The best of my section hives gave me forty-two filled and mostly capped sections; but these were drawn comb from last year. In fine, as well as I can calculate, section hives averaged with me sixteen or eighteen pounds per hive (last year about forty); frame tiering hives averaged thirty-eight pounds per hive, for I count not the one the queen spoiled; last year it was very little more. Moral—Give up sections and study the best methods of frame-tiering.

Stocks seem greatly crowded this year and brood excessive, and it was my intention, at the close of the season, to take artificial swarms from some of them, and raise young queens to head them; but, bowing to the superior wisdom of the editorial chair, I did not trust to virgin queens, but carried out my purpose in another way. I took artificial swarms, leaving the one with brood and young bees queenless. For these I procured queens from united casts and condemned lots, and though the queens were introduced by a novice under the quilt, they were welcomed by the young bees and are now laying. For this and many other hints I have to thank the only aid I ever got or ever sought—the *B. B. J.*—T. B. O'Bryen, *District Hon. Sec., Irish B. K. A., Boston, Oranmore.*

GOOLE AND DISTRICT B.K. ASSOCIATION.

Annual Show.

This Association held its second annual show on Thursday, August 14th, at Goole, when the attendance, although not large, was very encouraging.

The society of which Mr. Austin, M.P., is patron, and Mr. R. S. Scholfield, J.P., is president, had extended its scope so as to include flowers, plants, vegetables, &c. The result of their action was seen in the pleasant array of exhibits in these classes.

In addition to the competitors, Mr. Milner and Mr. Miller lent a number of plants, fruit, &c., and Mr. Roberts a collection of vegetables. Mr. Dixon, of Leeds, also staged a nice collection of bee-keeping appliances, observatory hives, &c.

The judges were:—Flowers, &c., Mr. Tildsley Saltmarsh, and Mr. Luck, Goole. Honey, Mr. R. A. H. Grimshaw, Horsforth, Leeds. During the afternoon Mr. Grimshaw delivered very interesting and instructive lectures, which were much enjoyed by those present; the accompanying manipulations were performed in the open, owing to the non-arrival of the bee-tent, and were fortunately carried out without any one being stung.

The Vicar (Rev. W. H. Carr, M.A.), who performed the opening ceremony, said he had great pleasure in acceding to the request of the committee and being present on that occasion. This was the commencement of a flower show, and he hoped it was the beginning of a prosperous and extensive exhibition in the near future. He thought that all sections of the Christian Church did well to associate themselves with everything that had for its aim the cultivation of the useful and the beautiful—indeed, anything that promoted the welfare of the people. He advocated the passing of such acts as the Artisans' Dwellings Act, for he felt sure that if every family could have, not only a comfortable dwelling, but also a piece of land whereon

to cultivate flowers, vegetables, and also bees, they would not hear so much about the want of counter-attractions to all the different centres of temptation.

Mr. Scholfield, in proposing the thanks of the society to the Vicar for his presence amongst them, expressed his pleasure at, and acquiescence in, the remarks that had fallen from the rev. gentleman's lips. He then made some useful and suggestive remarks on the subject of bees and bee-keeping, and dealt with some of Professor Darwin's theories. Mr. Grimshaw, in a few well-chosen and humorous remarks, seconded the vote of thanks, which was carried unanimously.

The honey exhibits were very creditable to the exhibitors considering the unfavourable season. The following is the prize list for honey:—

Open Classes.

Classes 1 and 3.—No entry.

Class 2.—Best six pounds extracted honey.—1st, J. York; 2nd, M. Milner; very highly commended, W. Chester.

Members' Classes.

Best six one-pound sections.—1st, A Woodhead; 2nd, W. Chester.

Best six pounds extracted honey.—Mr. Grimshaw gave a prize to J. Speak for a sample of heather honey staged in this class. 1st, W. Aaron; 2nd, C. Watson; very highly commended, J. J. Wise.

Best three pounds extracted and three one-pound sections of honey.—Prize withheld, only one exhibit being staged.

Manipulating contest.—1st, E. Wainman; 2nd, G. Roberts.

WOTTON-UNDER-EDGE DISTRICT BEE-KEEPERS' ASSOCIATION.

The third annual show of bees, hives, and honey of the above Association was held on Wednesday, August 20th, in connexion with the Wotton-under-Edge Horticultural Society. About 200 lbs. of new honey was staged. Mr. Burtt, of Gloucester, also exhibited a collection of bee-keepers' appliances. The Rev. E. Davenport, of Stourport, officiated as judge, and also lectured in the bee-tent, which was well patronised. The following is the prize list:—

Largest and best exhibit of honey in any form.—No entry.

Best twenty-four one-pound sections of comb-honey.—1st, (silver medal) the Countess of Ducie; 2nd, W. Hulance.

Best twenty-four one-pound bottles of extracted honey.—1st (bronze medal), W. Griffin; 2nd, A. J. Brown; 3rd, the Countess of Ducie.

The best super of honey not sectional.—No entry.

Best sample of beeswax.—1st, W. Griffin; 2nd, A. J. Brown; 3rd, Mrs. Till.

Best stock of bees in an observatory hive.—1st, A. J. Brown; 2nd, W. Griffin.

Best twelve one-pound sections of comb honey.—1st, Mr. Ward.

Best twelve one-pound bottles of extracted honey.—1st, G. Gunston; 2nd, W. Hulance.

Best frame hive made by a cottager.—1st, A. J. Brown.

Best frame hive made by a cottager who has never before taken a prize in a similar class.—1st, C. W. Workman.

Largest and best exhibition of queen-wasps and nests.—1st, J. Lickfold (252); 2nd, W. Teagle (150).

GLOUCESTER BEE-KEEPERS' ASSOCIATION.

The show of this Association was held at Longford Park in connexion with the flower show there on August 14th. There was a good display of honey staged, which did the bee-keepers of the district credit considering the season. The judging was kindly performed by Mr. J. Hutchinson, of Cheltenham.

Class 1.—For collection of honey.—1st prize, Mr. A. Jones; 2nd, Mr. W. E. Berry.

Class 2.—For twelve one-pound sections of honey.—1st, Mr. G. S. Ward.

Class 3.—For twelve one-pound bottles of honey.—1st, Mr. A. Ponting; 2nd, Mr. H. Canadine; 3rd, Mr. T. Stanley.

Class 4.—For six one-pound sections of honey.—1st, Mr. G. Neat; 2nd, Mrs. Coombs.

Class 5.—For six one-pound bottles of honey.—1st, Mr. H. Canadine; 2nd, Mr. G. Neat; 3rd, Mr. W. E. Berry.

Class 6.—For honey in any form.—1st, Mr. H. Canadine; 2nd, Mr. J. Harris.

BEE SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

September 3–4.—Lancashire and Cheshire B.K.A., in connexion with the Wirral Agricultural Society's Annual Show at Birkenhead. Nearly 30*l.* value offered in prizes. For schedules, &c., apply Sec. Wirral Agricultural Society, Birkenhead. Entries closed.

September 3–4–5.—West Cumberland B.K.A. first annual show of bees, hives, honey, window plants, &c., at Harrington. Forty classes and over a hundred prizes. For lists apply E. McNally, Sec., Harrington.

September 10–11.—Derbyshire B.K.A., in connexion with the Derbyshire Agricultural Society. Annual show at Derby. Nearly 15*l.* besides medals and certificates offered in prizes. Hives and appliances open to all England. For schedules apply W. T. Atkins, 6 North Street, Derby. Entries closed August 28th.

We are requested to announce that, in consequence of the failure of the honey season, the eighth annual show of the Wigtownshire Apiarian Association, announced in our columns as being held at Stranraer on the 19th inst., has had to be abandoned for the year.

SELLING HONEY THROUGH B.K. ASSOCIATIONS.

The Ulster B.K.A. have issued the following circular to their members with reference to the establishment of a honey depôt for the sale of members' honey:—

'Dear Sir,—In order to enable the members of the Association to dispose of their honey, the Committee have determined to establish a depôt for its sale in Belfast. This step has been reluctantly taken, but rendered imperative by the steadily increasing production, combined with the difficulty of disposing of honey at a fair price. Your Committee have accordingly entered into an agreement with Messrs. Alex. Dickson & Sons, florists, of 55 Royal Avenue, who have undertaken the storage and sale of honey sent them by the members of the U.B.K.A. alone, at 20 per cent commission.

'The honey will be received by Messrs. A. Dickson & Sons, at the depôt, under the following conditions, as regards both the Association and themselves:—

'1. The honey must be delivered at 55 Royal Avenue carriage paid: it must also be clean and neatly put up. It will be received at the following times only, viz.:—Between 1st June and 15th July: between 1st and 10th of September; between 1st and 10th of December, and between 1st and 10th of March. Parcels received at any other times will be returned to the sender at his expense and risk.

'2. When sending honey, the sender must mark it distinctly with his name and address, and at the same time inform the Hon. Sec. of the despatch of the parcel, so that it may be valued and taken into stock immediately on its arrival. The honey will be carefully stored and insured against fire, but must remain at the owner's risk. If any damage should occur, the loss shall be borne by the owners of that class of honey *pro rata*.

'3. A Sub-Committee of one or more members shall be appointed to inspect the honey, and to price same for sale. Honey will be divided into classes—viz., one-pound sections and jars; it cannot be received in any other form at present. These classes will be kept under separate accounts.

'The Sub-Committee shall have the right of testing the honey, and of returning any which they may consider impure. They may also send for honey in case the demand exceeds the supply.

'4. When honey is received and priced, the value of the lot shall be entered opposite the owner's name (each sort in its own class), and the amount so entered shall determine the owner's share of the proceeds of sale to be sent him on settling day. As the selling prices may be frequently altered, to suit the demand, the amount paid each owner on settling days shall be his proportion of the actual amount realised, with 20 per cent agents' commission deducted. Settling days shall be—31st August, 30th November, 28th February, and 31st May: the first settling day for each new season being 31st August. In case any honey remains unsold on 20th May in each year, it shall then be sold by public auction, and the proceeds divided as above.

'5. Honey, when sent to the depôt, and taken into stock, cannot afterwards be returned to the owner. This rule is necessary to prevent confusion. Empty boxes will be returned at owners' risk and expense—except instructions to the contrary be sent—the cost of carriage being deducted on first settling day. Empty jars or sections cannot be returned.

'If you agree to these conditions, sign the attached slip and send it to the Hon. Secretary. Honey cannot be received from those who do not sign the agreement.

'I remain, dear sir, faithfully yours,

'PAUL M'HENRY, *Hon. Secretary*.'

AGREEMENT.

'I hereby agree to the conditions of the Ulster Bee-keepers' Association, regarding any goods I may send to their depôt in Belfast, as set forth on the portion of this document, dated 5th November, 1889, which I retain. And I hereby certify that all the honey I may send to the depôt will be the pure and unadulterated production of my own bees. And I accept all risks on same.

'(Signed)

Queries and Replies.

[199.] *Pollen-carrying and Queenlessness.*—Is the carrying into the hive of pollen in good-sized pellets by a stock of bees during the month of August a sufficient guarantee that they have a queen? A *few* of my hives are made with bars instead of frames, and this will make a frame-to-frame examination next to impossible—hence my query.—B., *Hants*.

REPLY.—Pollen-carrying is strong presumptive evidence of a queen's presence, but cannot be deemed an infallible sign. Sometimes a fertile worker is laying, when, of course, pollen is gathered. Apart from seeing the queen, there is no guarantee except finding eggs and worker brood in the combs.

[200.] *Heather Honey and Wired Frames.*—My shallow frames, though once nearly full are now, I am sorry to say, empty, owing to the bad season. As the heather is in bloom I dare not leave them on longer. Could I put sections in their place with any prospect of their being filled, or is it too late for the bees to draw them out? As my shallow frames are all wired, if they get filled with heather honey they will be useless.—ONE IN A FIX, *Matlock*.

REPLY.—Combed, or even partly combed, sections may be given to bees in autumn where heather is plentiful; but the season must be exceptionally good, and the stocks very strong, if racks of empty sections are to be filled with combs and honey. It is quite a pity your

shallow combs are wired, and there is no need for it: but since they are, we should let the bees fill the combs at the heather and 'draw' the wires before selling the honey as comb honey, or cutting it up for 'pressing.'

[201.] *Formic Acid.*—Inquiring a few days since of a local chemist as to his price for formic acid, I was informed that he did not keep it in stock, but could procure it for me at 1*s.* 6*d.* per ounce for pure acid, and 3*s.* 6*d.* per pound for ordinary acid. Which is the right kind to use for foul brood? Is there any standard brand of given strength in this? I notice with respect to carbolic that 'Calvert's No. 5' is a standard brand used by bee-keepers, and I wondered if there was a similar standard for formic acid. I have just observed that your correspondent 'F. W. Currey' (306) speaks of having used 'Draper's B brand.' Is that a good one, and, if so, what ought the price to be? —S. W. R.

Reply.—There is no 'standard' for formic acid, but we see it is advertised in our columns for sale at 3*s.* 3*d.* per pound post free, specially prepared for bee-keepers' use.

[202.] *Broodless Hives in August.*—On August 26th I took the crates off my two stocks, the first having completed two or three sections and left the rest more or less unfinished. The other hive had not even touched the foundation in sections, but had stored what little honey they got in the frames below. On examining the frames of No. 1, I saw a little sealed stores in the outside combs, but I also found nearly every frame broodless, excepting a cell or two here and there. 1. Is there anything serious in the fact of the hive being broodless to such an extent so early? The bees were very crowded on ten frames. 2. This morning, in order to put in a dry-sugar frame feeder, I had to remove two of the combs. Is this a right step to take? 3. Is it too early to encourage breeding by feeding? My other hive has about two frames of honey, with every other frame taken up with brood, all ten frames being fully covered by bees. 4. What had I better do with this honey; leave it in for winter stores, or remove it for a time?—Leicester.

Reply.—1. It means nothing more serious than that cessation of income causes queens to cease laying earlier than they would otherwise do. 2. Autumn is the wrong season for dry-sugar feeding; it is only suitable for spring. 3. It is not 'too early,' but too late in such a season as this to start feeding to promote brood-rearing at the beginning of September. Feed the bees with syrup for winter stores, and bear in mind that it is much easier to cause queens to continue ovipositing by feeding in autumn than to make them start afresh after egg-laying has ceased for the year. 4. Leave it where it is, and read 'Useful Hints' in our last week's issue.

[203.] *Excluder Zinc and Driven Bees.*—About a month ago I transferred a skep to a bar-frame by driving and tying in combs worth saving, which turned out a great success, as it has on other occasions; but having to transfer two others, I thought I would use excluder zinc and place the skep above after driving, and in each case I found that the bees had all ascended into the skep, leaving the queen to die of cold, for she was nowhere to be found, and both hives were therefore queenless, and, moreover, had drawn out none of the foundation. I used a large sheet of zinc. Now, can you tell me why in both cases a failure resulted? As they were a neighbour's bees I have felt very disappointed. My own bees have done very well for the season. From each of two hives I have taken about sixty pounds of surplus, working with shallow frames, in spite of crushing the queen in one about the middle of May, and making an artificial swarm from the other, headed by a capital queen from Overton, about the beginning of June. From this swarm I have taken twenty sections, and it has ten frames with more than enough stores for winter. Last year I took 210 lbs. from the two hives. Still, I am very well satisfied after reading the returns of some of your correspondents.—T. Giblett, *Chipping Norton, Oxon.*

Reply.—You acted unwisely in not adhering to the successful method first tried. We cannot quite follow your proceedings in the later cases of driving. How did you get the bees into the empty skep and leave the queen below, and what was your object in so doing? Write and tell us. Yours must be a capital bee-district to yield such results in so poor a season, and a little *more careful management* ought to make your bee-keeping a great success.

[204.] *Wasps and Bees.*—Should be much obliged if you could tell me:—1. How to keep wasps from hives, as they are very troublesome to my bees: they go in and out as if the hive belonged to them. Are they taking honey? Was very pleased to see bees driven at the agricultural show here, and I learnt a lot in a short time, although I had driven bees before. 2. Had feeding better be commenced now, as my bees have not even entered the super crates; if so, how shall I make the food? 3. I have some of Cheshire's foul-brood cure solution, but have lost directions how to use it with syrup. Will you please say how it is used?—R. Tyler, *Leicester.*

Reply.—1. Wasps carry off the honey if allowed to enter hives. Refer to paragraph on page 416 of last issue. 2. Yes, feed at once if honey-gathering is over. A half-pint of water to every pound of sugar; boil very gently for one minute, and stir in a tablespoonful of vinegar and a pinch of salt to each three pounds of sugar. 3. One ounce phenol solution as sold, well mixed with a pint of water, makes a solution of proper strength for bee-food. Add one ounce of this latter to each pint of food.

[205.] *Bees Eating Fruit.*—I have taken your *Journal* for two or three years as late Secretary of the Gloucestershire Branch of the B.B.K.A., and have derived much that

has been useful to me from its pages, but this is the first time I have ventured to ask for information from your numerous correspondents. I have read that bees do not injure fruit. I have five strong hives of bees, and for this last week they have been in hundreds on some fine raspberry-canes on which much fruit still remains. Upon examination, I find the raspberries all more or less spoiled, one berry often with three bees on it. I am anxious to know if the very stormy weather has had anything to do with their presence on fruit, as I have never noticed this fact before, or does it mean they are short of stores in their homes? If you think this inquiry worth publishing in your *Journal*, I shall esteem it a favour to have it answered.—KATO GAINOS, *Berryfield, Stonehouse, Gloucestershire.*

REPLY.—The question of bees eating or injuring fruit has long been a moot point among authorities on the subject. Under very exceptional circumstances there is reason to believe that bees do a little damage in this way, but it is just the *little* which gives colour to the idea that they are fruit-eaters. Practically they are not. If long-continued wet causes ripe fruit to burst or the skin to crack, no doubt bees when food is scarce will suck the escaping juices. Beyond this they will not go, and we are justified in the view that bees don't injure fruit by the report alluded to in our leader on p. 229 of *Bee Journal* for May 15th, to which please refer.

[206.] *Wintering Bees on Soft Candy.*—1. Can bees be fed up for winter by giving them 'Scholtz's candy' or 'Good's candy' on the top of the frames? 2. Can I winter on ten or eleven frames with success? 3. In one hive the bees will not take the honey from the frame or section when placed behind the dummy, but simply cluster upon it; why is this? 4. Should spare frames of comb be kept in a cold or warm place during the winter?—You may be interested to hear I started bee-keeping in June 1889, with two swarms, from one of these I this year began taking completed sections, on May 26th, and by July 26th this hive had given me forty-eight sections, besides throwing out a swarm. The second hive has this year given me thirty-six pounds of extracted honey, and has also swarmed. So now I have four stocks, this year's swarms being very strong. I am a careful reader of the *Journal*, without which I could never have succeeded.—ED. BUDD, *Montfort Cottage, Strood.*

REPLY.—1. Bees have been safely wintered on soft candy such as is named, but we cannot commend the practice of relying on candy entirely for winter stores: it is not *safe* by any means. 2. Yes. Some experienced bee-keepers deprecate the practice of contracting hives in winter, and so long as their method succeeds we are not at all disposed to dispute the wisdom of it. 3. The bees at present regard the frame placed behind the dummy as part of their hive; later on they will most likely remove the honey. 4. To keep combs free from moths or mouldiness they should be hung up in a warm, dry place, also be carefully wrapped up in paper.

[207.] *Keeping Bees in Unicomb Hives.*—Would you kindly assist me through the medium of the *B.B.J.* on the following points: Lately I have been replacing several old queens by new ones, and on the 16th August I put a comb and bees with a three-year-old queen in a unicomb observatory hive, adding also some other young bees from a nucleus. The comb has sealed honey one side, and the bees have settled down and seem all right; but I am thinking this state of things will not last long, considering they are confined within glass walls, and I should like to keep them up to the winter, if possible, to place them in the window occasionally. Now the points I would trouble you about are these:—1. Which is the best way to keep them? Would it be advisable to place the hive on the site of the nucleus every two or three days, and after six p.m. give them a fly; or what would you do? 2. Providing they consumed all the honey in the comb, how can I feed them? I could give some soft candy through hole in bottom: would this do? I have been a constant reader of both *Journal* and *Record* for the last five or six years, and I cannot call to mind ever having seen anything approaching the above queries. If you can refer me back to some previous articles or letters I shall be much obliged.—AMATEUR NATURALIST.

REPLY.—1. Pray do not attempt to keep a unicomb hive under the conditions named; it would only end in failure. The best way to keep an observatory hive is to let six or more combs hang in the ordinary way in a hive with glass walls, and allow the bees to occupy it only during the summer months, replacing the frames in a wooden hive for winter. You would require to see a hive of the kind we refer to before you can properly understand it.

[208.] *Uniting Bees—Preventing Honey from Granulating.*—1. Is there any known means of preventing honey in sections and in bottles becoming crystallised and solid? 2. Do not differences of circumstances, such as temperature, time of year, and disposition of bees, make a considerable difference as to success in uniting? The usual plan, which succeeds so well at times, I have found at other times to fail—uniting in late autumn, *e.g.*, I have found sometimes very hazardous, and occasioning the loss of the best part of one or two good stocks. I should like to know what has been the experience of others in the matter.—A SUSSEX RECTOR.

REPLY.—1. Only by keeping it in a warm place, say at a temperature between 65° and 80°. 2. Undoubtedly. Not only so, but the *method* and the experience of the operator have much to do with success or failure in uniting. A correspondent of our monthly, the *Record*, who has failed with the ordinary methods, succeeds perfectly by doubling the two stocks, with a sheet of perforated zinc between for two days. With him the bees join quite peaceably when the zinc is withdrawn.

[209.] *Melting Propolis along with the Wax.*—1. Shall I be doing wrong if I put the fragments of the sticky stuff which the bees stick sections together with into the boiling water when I am extracting wax from the comb? 2. I have some combs of capped honey in some frames which I bought with a hive about a year ago. Can I with advantage place one or two of these in a hive which requires feeding? 3. Should I uncap any portion of them before I do so? I believe a great part of the contents of these combs is sugar, with which the bees that stored them were bountifully fed.—AMATEUR, *Somerset.*

REPLY.—1. What you call 'the sticky stuff' is propolis, and should not be put among the combs when melting them down for wax. 2. If the sealed food has not granulated or become solid (which we fear it will be), it may be given to the bees. 3. No.

Echoes from the Hives.

Vane Terrace, Darlington, co. Durham.—In this district we had very unseasonable and bad bee-weather during our best months for honey-gathering. Owing to the cold and consequent want bees did not swarm much. At the end of June they appeared to lose hope, and made a fierce onslaught on their drones, killing the flying and throwing the larvæ from the combs. I kept mine right with careful feeding, but by about the third week of July I, too, gave up hope of any honey being gathered. The orchard and clover bloom came and went, and nothing done. Around my bees are a large number of beautiful lime-trees, and upon these any hope left had centred. The flower-buds looked as if they never would burst. On the 26th of July, however, a pleasant change of weather took place, and the warmth of a bright sun soon opened these obstinate flowers. The sweet, honey-laden odours quickly attracted my pent-up bees. What a sight it was to watch them there, and also to hear the hum on the trees! How busy the little creatures were! Why, they gave you the impression that the order had gone forth that lost time must be made good! They were at work at 4.30 a.m., and as late as 8.30 p.m. The bloom was profuse, and all out at once on account of it being retarded by cold weather. On this account it was not so prolonged as it might have been. I made inspection of them on the 2nd inst., and found that in one short week my busy workers had stored their winter needs, and this from a start bordering on starvation. I think this is very satisfactory, and wholly attributable to the lime-tree blossom, which has not proved so honeyless as the white clover this season. Not having swarmed, and all hungering for the *boom*, they were in capital order for taking advantage of it. I notice some of your correspondents asking about an association for this county. I shall be glad to co-operate and assist in the formation of such. If an encouraging number will communicate with me, a committee of management might be appointed and the first preliminaries arranged.—G. B. BLACK.

Hucknall Torkard, near Nottingham, August 18th.—The season has been very disappointing to most bee-keepers in this district. Very little honey has been gathered, and some have taken none. My bees have done very well considering the season. From four stocks I have extracted nearly seventy pounds of honey of very good quality.—F. C. PIGGIN.

Kingston-on-Thames, August 22nd.—So far as I can learn, bees have done fairly well in this district—in fact, better than usual, for I hear good accounts of the honey harvest in all directions, more particularly from frame hives, some of the sections taken weighing upwards of seventeen and eighteen ounces. I have not yet taken off the whole of my own, but must speedily do so, as I find the bees are beginning to take the honey downstairs into the brood chamber. My own sections have been well filled, and the honey is of a very pale colour. I have had no difficulty in selling them at 1*s.* 3*d.* each. Wasps are just beginning to put in an appearance, but I think they will have a warm reception, for the bees are very strong in numbers. I had one very strong swarm of hybrids on July 15th, which I safely hived, and they are doing well.—H. C., *Canbury Park.*

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

T. B. O. B.—Your heather plant is of the right variety, and will yield honey if your mountain is favoured with a dry, sunny time for a week or two.

G. DELL.—The sugar sent is the right sort for dry feeding, but we fear you will hardly get the bees in skeps to take sufficient of it for winter storing. Take our advice and cut a hole in top of the skep and feed with syrup.

T. W. LENIN.—Heather bloom sent is the right sort for honey.

SUBSCRIBER.—There is no sign of foul brood in either piece of comb sent. The brood is chilled, and dead brood is always a dangerous thing to leave in hives; you must, therefore, remove the combs containing it, and *feed at once* with medicated syrup.

NOTICE.—We would ask our correspondents to take notice of the removal of our office, and request them in future to address all communications relating to the literary department, &c., to 'The Editor of the "BRITISH BEE JOURNAL," 17 *King William Street, Strand, London, W.C.*'

THE

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BEE-KEEPERS' RECORD AND ADVISER.

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Editorial, Notices, &c.

USEFUL HINTS.

Weather.—Bee-keepers have had a fairly favourable autumn so far, blackberry honey in some parts having sufficed to half-provide winter stores for stocks where that—to the bees—favourite bloom has been plentiful. The majority of hives have, however, proved terribly bare of supplies when thoroughly inspected; and as all chance of further natural help is now at an end, all who still delay and have no heather to rely upon should set about calculating the quantity of sugar likely to be required. This done, the sooner the bees get their winter food stored away in the combs and sealed over the better. The weather is favourable for autumn feeding, and, if begun at once, sealed stores will be the rule. Slothful bee-keepers, who delay feeding up till the weather is cold and daily flights of the bees impossible, always see their stocks wintering between combs of unsealed and occasionally fermenting stores, much to the detriment of the bees' health and their well-doing. We therefore again urge that advantage be taken of the present fine weather, and all feeding up be carried through without delay.

Top Boards over Quilts.—A correspondent writes to ask what advantage there is in using the 'top boards' mentioned in 'Hints' a fortnight ago. As there stated, we are by their use saved trouble and time, and the bees are saved from disturbance when being fed with rapid feeders (or, indeed, any feeders) in autumn, because the quilts are not removed, nor is the warmth of the hive-body diminished by uncovering. This is the *present* advantage; but beyond this, in early spring, when making cursory inspections of the outer combs, the centre board, which directly covers the brood, is not disturbed, nor is the warmth of the brood nest perceptibly lessened. We cannot tolerate the careless method some bee-keepers display when they 'chuck' the quilts on without caring apparently whether they fit close down or not. Our plan is to give the necessary ventilation *below* the combs in winter; therefore, the closer and warmer the top is kept the better, and with a slip of wood laid across the top boards and weighted down with a half-brick, the frame coverings always fit close all round, and no heat is allowed to escape at the top.

Formic Acid.—The rapid favour with which Mr. Sproule's remedy is being received, and the numerous trials now being made of it as a cure for foul brood, encourage the hope that we shall be able to arrive at a fairly definite estimate of its value as a remedy before the year closes. There seems, however, a good deal of difficulty in procuring the acid of proper strength for bee-keepers' use, as well as considerable trouble over the wide variation in price. It is a pity some of our regular advertisers do not put themselves in communication with the discoverer of the remedy, so that formic acid of a strength most approved by him, and at a reasonable price may be available to all readers of the *B.J.* Mr. Sproule's method of using the acid has already appeared in our columns, and if the suggestion here made is acted on, it will prove a very 'useful hint' both to readers and ourselves. Some caution also is needed against using zinc-lined feeders when formic acid is mixed with bee-food, as it acts very rapidly on zinc and may produce mischief in several ways. We shall be glad to receive reports for publication from any who are using the new remedy.

Fixing the Price of Honey.—This is a chronic difficulty with which we confess ourselves quite unable to deal, though it crops up as regularly as the autumn comes round. It seems so natural that bee-keepers who have honey for sale, and no guide as to its market value, should write the *B.J.* for help—and withal so easy to

suppose that our special knowledge of what is going on will enable us to render it—that a few words may be useful in placing the matter in its true light. Practically, then, it is just the extent of our information which renders it impossible to do more than say that demand, supply, and locality are ruling factors in the price of honey, which varies so much in different districts as to be almost beyond comprehension. How can we say what is a 'fair value'—for that is the form the question usually takes—when a price considered quite liberal by one inquirer would be scouted with contempt by another? Quite recent cases crowd on us as we write which will serve to emphasise the point we desire to make. A correspondent wrote less than a week ago to say that a chemist was offering cottagers 4½*d.* per pound for their run honey. Next day, in fulfilment of certain judging duties devolving upon us, we proceeded northward to a bee and honey show 200 miles away, and at this show came across a few dozen sections of heather honey, not specially good as sections, but containing honey of good flavour. Well, bearing in mind that we had a friend who would be likely to buy a few of these for his own table, and meeting with the exhibitor, we inquired the price he would take rather than be troubled in carrying them back home. 'I can sell them all at home quite easily for two shillings and half-a-crown a-piece,' was his reply.

Could anything better demonstrate the anomaly of honey values in different districts? One-pound sections at 2*s.* 6*d.* each! and extracted honey at 4½*d.* per pound! may serve to show how impossible it is for *us* to fix the price of honey. Therefore the most 'useful hint' we can offer producers is to adopt the plan followed by our friend from the 'Lake district' above referred to, viz., put honey up in nice form, and, if your district yields good stuff, get the best price obtainable for it; while, for those who cannot sell in this way, to offer your produce at such a figure as will allow the retailer a fair profit if he sells at 1*s.* per one-pound section, or 1*s.* per one-pound jar of extracted honey. If a uniform price of a shilling each to consumers for one-pound sections and pound jars of extracted honey could be established, it would assist sales very much, and, without reference to 'fancy prices,' could not fail in being satisfactory to the producer.

DEVELOPMENT IN THE HONEY BEE.

By R. A. H. Grimshaw.

(*Continued from p.* 423.)

What is worse, the wise, orderly arrangement of such departments is frequently roughly disturbed and transposed, sprays of malodorous carbolic acid and sheets damped with the same being used to terrorise the hitherto mind-their-own-business inmates of the hive. Lastly, the lovable and considerate bee-master gently (?) wrenches off a whole storey of *dulce domum* and carries it away with its occupants, leaving them to escape, men, women, and children, as best they may by means of chink, cranny, or window—to find their way home, if they can, with such of their store as they may be able to save from the rude wreck. And further, if they are not quick about this their store cupboards are wrenched out, themselves being flicked off by a wing-feather or brush. As for artificial swarming, driving, bumping, uniting, and doubling, these processes are, we know, peculiarly endearing as between the bee and its master (*sic*), saying nothing at all about camphor, carbolic, and other sanitary stench-cures for diseases we ourselves have rendered them liable to, if not absolutely brought to them in our supremely wise efforts to 'improve the breed.'

I do not like to rob the bee of any credit it is justly entitled to by reason of those truly wonderful and marvellous instincts our early teachers have been in the habit of laying to its charge: but I have been many times struck with the absurdity of some of these: at the same time we should not expect it to behave, in our artificial treatment of it, in the same way as its instinct would lead it to when left severely alone. The fanning instinct is a case in point. We open a hive and set bees to work fanning and stinging in all sorts of ridiculous attitudes without rhyme or reason; then we think contemptuously of the absurdity of their so-called wisdom, whereas, were they left alone, there would be little to criticise. Poor, simple things! Can we wonder, if the temperature be raised by disturbance, when one or two 'outsiders' join in the effort to ventilate? The defensive faculty is also similarly misused. When a hive is opened some bees may be seen promenading the combs with the sting extruded, at the end of which is a drop of clear poison, and its movements do not seem to be directed by anything rational, so far as we can see. It appears to be aimlessly wandering about under the impression that, a disturbance having been made in the hive, it is effectively discharging its duty by protruding the sting into something, if possible, but in any case protruding it. The senseless way in which bees sacrifice their lives in thousands, for no earthly good, on offending or offensive objects, on defenceless, harmless things, and in an altogether useless way on many hard surfaces, must have struck the observant bee-keeper and removed a great deal of the glamour cast over the honey-bee by early writers, who, unfortunately for us, gave too much rein to the

imagination, and endowed the bee with a number of fictitious qualifications for our admiration it will take many years to adjust to their proper level, and correct in such fashion that we shall be able to give it its true place in the ranks of sense- or reason-using animals When we consider what effective use could be made of its sting by the bee, when drones are deemed superfluous brethren, by a judicious insertion of the dart between the rings of the abdomen, instead of the wearying, harrying treatment now bestowed on the drone, would it not be better, once and for all, to think of the sting as being intended by the Creator for some other purpose than as a weapon of offence and defence, and seek in the economy of the hive for its true use, always remembering that the insect so using it is an imperfect individual, inasmuch as it cannot reproduce, as a male or female, its species, and is, in fact, either in process of development into a higher form, or else becoming degraded by specialisation of parts into an animal particularly useful only in certain points as an indispensable member of a community who are mutually dependent on each other to assist in forming together a perfect family, gathering sustenance, increasing in number to the displacement of other insects, and admirably performing their part of usefulness in the great economical spectacle of Nature by cross-fertilising certain plants which without this aid would dwindle in size and ultimately disappear from the scene? Nor should we lose sight of the (to be inferred) consequential disappearance of such animals as now subsist on the myriads of plants visited by bees. Of course, I am not at present counting man and his domesticated food-supplying animals amongst those entirely dependent upon plants cross-fertilised by insects, the former being omnivorous, whilst the latter are chiefly graminivorous, and grain-producing or grass-producing plants are principally indebted for their intercrossing to the gentle breeze either brushing their flowers together, or carrying clouds of invisible pollen to the pistils of strange plants of the same species. Beans, turnips, carrots, and linseed, so much used as food for cattle—fruits and vegetables, indispensable for civilised man—are, however, dependent on insect visitation for their continuous survival and development, but the roots, leaves, flowers, and fruits of innumerable plants crossed by insects are absolutely necessary for the sustenance of countless other insects, birds, and animals, which each in its turn is provided as food for some other voracious captor—insects feeding upon plants and each other; birds feeding upon plants, insects, animals, and each other; animals upon plants, insects, birds, and each other: so that we see the vast importance of the part in the harmonious inter-relation of things played by the insects in assisting the development of members of the vegetable world, upon which in a very great measure the rest of animate beings depend in their turn for the necessary food indispensable to their successful march in the world. Of the work done by the plant in reducing inorganic bodies and the substance of dead animals to elements capable of being assimilated into its own structure, and thus passing matter on and on in the ever-changing round of mutual interdependence, this is not the place to speak.

(*To be continued.*)

MODERN BEE-KEEPING 'UP TO DATE.'

The curate who, when he went to live in the country, said he should keep a bee and have honey for breakfast every morning, expressed our sentiments, if put into the plural. We went to live in the suburbs, and immediately took to bee-keeping. It is always well, when you set about doing anything, to do it in the best possible way. Some people would have begun bee-keeping by begging a swarm, or purchasing one of a cottager for 5*s*. We knew better than that, and went to a well-known bee-emporium and purchased a good strong stock for twenty-five shillings; then we knew that we had bees of the proper kind. Of course, if we had only embarked on bee-keeping for pleasure, we might have done things in a very different way; but ours was not a sentimental but a serious business pursuit with the object of making money, therefore we began by getting the most expensive sort of hives, for the books all said that was really the truest economy in the long run. As bees may swarm at any time, and it is always well to be prepared, we bought three hives so as to be ready for all emergencies. They only cost 4*l*. 10*s*., and had bar frames and little legs to stand on, and everything handsome about them—so much better than the old straw skeps which cost scarcely anything at all. We had them painted and set up in the garden, where they looked like Swiss lake dwellings without the lake. A man, at a trifling cost, brought the bees to us and put them in one of the hives, and selected the most favourable position for it to stand in, which unfortunately compelled us to cut down a very good apple-tree. But bees were our business, not apples, and we made the sacrifice cheerfully.

It was a little disappointing to find the bees in a black bunch on a plum-tree in our neighbour's garden the next day, but a telegram soon brought the man again, and they obligingly waited for him. After that they sulked in the hive for a day or two, or chased the children round the garden if they approached too near. Then they set to work. In less than two months they had started a nursery, and then we put the 'super' on. To do this we provided ourselves with a complete bee-dress. Owing, unfortunately, to its not fitting as well as could be wished, the bees got inside the veil and behaved in an infuriated manner. It is said in the books that, after a time, bee-keepers get inoculated and the stings do not produce any unpleasant effect; but the inoculation is not a pleasing process, and it requires more than one operation to complete it. Towards the end

of the season we took the 'super' off. We found that the super contained quite six pounds of the most delicious honey, which we sent to our friends as an earnest of our new undertaking, and hoping to secure their orders in the future. We had no more honey that year, and we carefully fed the bees all through the winter with a most elaborate preparation of white sugar, water, and vinegar. They consumed about twelve pounds of sugar, and seemed so lively in the early spring that we thought it would be wise to buy another stock. We did so: and directly afterwards our first stock swarmed, and after that, as we had no hives on hand, we ordered three more of the same sort. The swarm migrated one night back to its old quarters, and there was a fight. The ground was strewn with the dead. Not being able to effect an entrance the survivors flew away, and we lost them. Our next swarm found a lodgment in a flue in the house of a neighbour, from which it was found impossible to dislodge them without pulling the house down. As our new stock did not swarm, a neighbouring bee-fancier kindly undertook to divide them, with the result that both divisions sulked and struck work. Just about this time we found that the old stock had wax-moth and were utterly ruined, and the hive had to be disinfected. We had no honey at all that year, and the following winter the new stock died, and the swarm had dysentery. We put them into the conservatory in the cold weather and they revived, and insisted on living in the house. We had a little honey from them last year, and as we have plenty of hives we only want a few good stocks to be in quite a flourishing condition again. We have taken on our house for another three years, and hope to be on the road to real affluence soon.—*St. James's Gazette.*

[The above has been sent by a correspondent for insertion in *B.J.* Why, it is not easy to say; but if a word from its Editors could possibly reach the writer, we would suggest the outlay of a penny a week in the purchase of this *Journal* as an investment worthy of his serious consideration.—Eds.]

HONEY HUNTING IN AUSTRALIA.

The wild bee in Victoria and New South Wales is the *Apis mellifica* of Europe and the whole civilised world, and, as in America, it has spread over a great part of the continent. On the Murray River, and in the whole of Riverina, it is especially plentiful, and there I found most honey when I went out hunting. Though it seems a mild enough pursuit, in my opinion it is the only really dangerous game to go for in the ancient land of the marsupials. One has to exercise a considerable amount of awkwardness, and to display much natural stupidity, to get hurt by a kangaroo: the innocent native bear is no more a real bear than it is a shark: the sneaking dingo will lie down to be killed: and as for the fierce and formidable mosquito, man is his prey rather than the reverse. Putting scrub cattle out of court, there is hardly anything in Australia to hunt, save the bee, which can make things unpleasant for the hunter; for snakes we usually left alone unless they come within reach of our stock-whips; and as for the bunyip, we always regarded it as a black-fellow bogey. But bees were often exciting, and sometimes dangerous.

I was a new chum of six months' standing when I was first inveigled into the bush, with a bucket and an axe, to pursue the bee. It took some persuasion on the part of my mate, Bill Stewart, on the Upper Murray, to induce me to brave them in their native wilds, for I only too distinctly remembered having played the fool as a child with a beehive, a course of proceeding which naturally had resulted in hartshorn and the blue bag. I argued that if such were the case with the tame, domestic, civilised bee, the wild one would be infinitely worse. However, after a judiciously applied series of taunts, Bill induced me to shoulder the axe and take the bucket in hand, though I own I would much rather have mounted a buckjumper. It seemed better to die of a broken neck than to be stung to death.

The knowledge I possessed of the bush at that time was just sufficient to enable me to get lost on the very shortest notice, and it seemed to me that Stewart was cruelly reckless both of his own life and mine when he plunged into the thick forest and proceeded to climb an almost inaccessible hill. By the time the sharp stubs of wattles had nearly torn my shirt off my back I was utterly exhausted. But presently we stayed under a big gum-tree, perched on a slope as steep as the roof of a house, and my mate informed me that it was a bee-tree. He tried to persuade me that he had known of it before: but I scorned his assurances, not being able to believe that any man could find one particular tree in such a forest. However, we commenced cutting it down. It was the first time I ever handled an axe seriously, and the amount of physical strength I expended in making an ugly, irregular gash in the bark would have sufficed an American from the forests of Michigan for a week's work. Stewart smiled grimly, and set me aside. In about an hour it was evident the tree would soon fall, and desiring to do something serious, I took up the axe again.

I had noticed a bee come down every now and again as if to inspect our proceedings, but as none of them attempted to attack me my confidence returned. I began to scorn the wild Australian bee, believing that its native ferocity had been undermined by the mild climate of its adopted country. But the tree began to shake, and a bee, evidently much disturbed in mind, flew down fiercely. It made three rapid circles round the trunk, and then, satisfied that I was undermining the constitution of the state, flew straight into my face and stung me under the eye. I dropped the axe with a loud yell, and went uphill like a kangaroo. As I started the tree gave a crack and yielded. It fell with a terrible crash almost on its crown, and the bees

came out in a wild, excited crowd. I cannot understand why more did not attack us, but we cut the honey out of their hollow branch without more than three stings each. My face did not swell, but Stewart's right eye closed, and the left one nearly disappeared with it. If he had been rendered quite blind we should have been obliged to remain until next day, for I could not have found my way home. It took me months to acquire, even in a primitive way, some kind of instinct of self-guidance.

The honey that we found was of very fair quality, though it ran all shades of colour, from the white new comb to the deeply stained remains of past years, and the acacia or wattle blossoms gave it a pleasant aromatic odour.

Next year I was staying for some weeks in the Great Billabing, near Carabobla, and often went out with my host's eldest son hunting for honey. He had a marvellously quick eye, and as he rode about the station looking after the sheep was constantly noting new trees which sheltered bee-colonies in the upper branches. We used to haul out a light sledge with a tub on it, and sometimes brought home a hundredweight at a time. The pursuit was something like gambling, for I have spent the whole morning felling a tree to find a pint of honey. Once I remember staying with Will Howard at the foot of a very slender gum, and discussing whether it was worth while bringing it down. At last we decided that as it was so small we might as well try. On putting our axes into it we found it half rotten, and felled it in less than ten minutes. We had to make two journeys home with the honey, for the whole of the tree's upper part was a mere shell, containing the accumulations of many years. I dare say we obtained 120 lbs. of honey and wax.

I have never seen practised in Australia any of the elaborate scientific methods which are employed in America to discover the home of the bees. Angling is unknown, and no one makes a profession or business of honey-hunting. But as a recreation in the late summer it is pleasant, and often exciting. To stand on the fallen trunk and cut out the comb while a thousand bees are flying round one's head in a thick cloud gives a sensation of daring adventure not often afforded by 'bailing up' a wretched kangaroo in a country which is singularly and universally devoid of those animals which satisfy the love of danger in hunting in the Western prairies or Rocky Mountains of North America. If any one thinks this is not so, he can easily remove his doubts by upsetting a hive in the neighbouring garden, previously making a firm resolution that he will not run away.—MORLEY ROBERTS, *in the 'Field.'*

THOSE BOYS.—*Sam.* 'Look here, Bob—I hear you've started bee-keeping, so can you tell me why a beehive is like a diseased vegetable?' *Bob.* 'No!' *Sam.* 'Because a beehive is a beeholder, and a beholder is a spectator: and a specked-tater is a diseased vegetable—see?' *Bob.* 'No!'

Correspondence.

The Editors do not hold themselves responsible for the opinions expressed by correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'THE EDITORS of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 1st page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

BEE-KEEPING IN CAMBS.—A WINGLESS QUEEN.

[333.] By this post I send you a wingless queen-bee. The stock I found her in had sent out three swarms. With her were about a quart of bees; the combs had patches of brood in all stages, and a considerable number of freshly laid eggs in worker-cells. There were a few drone-cells, but no eggs in them. I shall be glad if you can say if the queen has been fertilised. If so it would seem that her wings had been snapped or broken off, possibly in a fight with another queen, although from present appearances it looks as if she had been hatched wingless. I have known workers hatched with undeveloped wings through having been chilled when in the nymph state, in consequence of there not having been sufficient bees to keep up the required warmth; but I never before saw a wingless queen at the head of a stock except one, whose wings had been clipped to prevent her from leading off a swarm when a swarm was not wanted. I have driven about eighty stocks for cottagers this year, and only in six cases have I found any brood. Many of the hives had the whole of the combs filled and sealed with the exception of an inch or two just near the entrance. I found several that had been attacked by wasps, and partially cleared out both of bees and honey, and in one case I found upwards of a hundred wasps on one piece of comb, many of them so gorged with honey as to be scarcely able to fly.

So far as I have seen and heard, the honey harvest in this immediate neighbourhood is fairly good. In some instances stocks have sent out two and three swarms: in others only one swarm has come off, and in a few cases there have been no swarms. Most of the stocks I have driven have been very populous—some very gentle, others very vicious. I have seen no appearance of disease or unhealthiness; all seemed bright and 'brisk as a bee,' and smelt as sweet as honey and wax can smell. I have had to do with bees for nearly forty years, and never saw a case of 'foul brood,' yet I have come upon many stocks this year without brood or queen, and last Wednesday, while waiting

for a train at Isleham, I drove six stocks for a cottager. Three out of the six had sealed royal cells, and a large number of drones in each, a small number of workers, and about ten or twelve pounds of honey, the combs being old and black. One had neither queen, eggs, nor brood, but a large population, and twenty to thirty pounds of honey. The other two had all the combs full and sealed; no brood, but young and active queens, and very large populations. Cottagers tell me our local chemists are offering 4½*d.* per pound for run honey; others say they have sold comb honey to private customers at 10*d.* and 1*s.* per pound, and run honey at 7*d.*, 8*d.*, and 9*d.*, but the demand is not great.—S., *Cambridge.*

[Appearances point to the wings of the queen having been bitten off close to the joint. She has also lost one of her antennæ, showing that in some way she has been subject to very rough treatment. A few days will prove whether she has been fertilised or not by observing the brood when capped. The body is too hard and stiff for a post-mortem examination of the ovaries.—EDS.]

METAL CORNERS FOR BEEHIVES.

[334.] Seeing Mr. T. Bonner-Chambers' communication *re* metal corners for beehives, may I, for his information and that of others, be allowed to say that Mr. T. Page is the inventor? He holds a patent for these corners, and makes and sells the corners and boxes made with them, so that any person making and using them would be liable to be prosecuted. Knowing this I thought I should not be doing my duty by withholding it. I haven't the number of the patent by me, but will get it in a few days if required.—JOHN PERRY, *5 Bridge Street, Banbury.*

STORIFYING *VERSUS* LONGITUDINAL.

[335.] Several years ago I adopted the long twenty-frame hive, but have used hives of nearly every shape and size, also with skeps above and below them. In my report last year (No. 2302, page 409, September 19th, *B.B.J.*), giving an account of an experiment I made with seven twenty-frame hives to show whether the bees preferred the storifying system or the longitudinal one, the facts proved that they preferred the latter. I have again this year made the same experiment. I put ten frames for the brood nest, closing with a dummy, which had perforated zinc along the bottom of it to allow the bees, but not the queen, free access to the nine frames placed behind for extracting when needed by the bees. Over the brood nest I placed a crate containing twenty-one one-pound sections, filled with foundation, but did not put any excluder zinc under, wishing to give both queen and bees free access to the sections, and also without any restraint. As the bees in some of the hives filled some combs and sealed them over, I concluded that they would also fill the sections, and made an entry for them in the Lincoln county show at Boston, but was disappointed to find that there was not a single section finished, and only a dozen half full. There was not any brood in them. I have not had a single swarm from the seven hives either this year or last, and my experience is that for utility, simplicity in working, minimising the risk of swarming and the chances of chilled brood, 'an important item to new beginners,' there is not any hive equal for the comfort of the bees, and the above advantages, to the long, double-walled, twenty-framed hive.—ROBT. THORP, *Swineshead.*

[We have no desire to minimise the result of our correspondent's experiment, but for the sake of consistency, and as personally preferring the storifying plan, we must say we cannot see the force of his conclusion. If it is desired to test the two systems he must pardon us for saying that his was in no sense a fair trial. Supposing he had set a tiering box of ten shallow frames of ready-built comb over the brood nest, and had placed his foundation-filled sections in the rear, divided from the brood nest by a dummy, would he call that a fair test from *his* point of view? The tiering system is not so generally a failing one that anything need be said here in its favour except that, to prove either its advantages or its disadvantages, it must have a proper trial, and our correspondent's plan of testing it is—to use a vulgarism—'not good enough.'—EDS.]

BEES IN SUFFOLK.

[336.] I think the honey yield in Suffolk can only be classed as excellent. I commenced this season with three stocks, fairly strong, which between them have yielded easily over 200 one-pound sections, nearly all of which are very good. Two of the stocks swarmed, and I returned the swarms, and find that when returned they will do nothing but fight for a few days. Most of the honey was gathered by the first week in June. I think the above report will compare favourably with others which have already appeared from other parts.—C. A. GRIMWADE.

CARNIOLANS.

[337.] I think that bee-keepers who have many stocks of Carniolans must be well tired of them if they have had the same experience with them as Lord St. Vincent wrote he had had with his bees in the *Bee Journal* a few numbers back. I should like to recommend his Lordship to try a different plan with them next season. When returning a swarm always add two or three frames of foundation in centre of brood nest, of course cutting out all queen-cells. I always practice this same plan with our native bees, and they have always gone on working as usual and never again attempted to swarm. It gives the queen new comb in which to deposit her eggs, and keeps the bees comb-building, and therefore takes their attention from swarming. If Lord St. Vincent had treated such inveterate

swarmers as Carniolans in that way, I feel sure he would have been spared most, if not all, the trouble and bother he seems to have had.—EAST LINCOLN.

A SIMPLE SUPER CLEARER.

[338.] In the *Journal* (page 416) it is claimed by 'A Dealer' that he has invented a simple super clearer in the form of a zinc cone fixed to the ordinary ventilation-hole of the roof of a hive. The idea was given some years ago by T. B. Blow in the *B.B.J.* It was invented by a bee-keeper on the Continent, only it was fixed to a box specially made to place the super into. I have used it myself, attached to an ordinary hive, over two years ago.—W. WILLIAMS, *Round Table Apiary, Caerleon.*

[No doubt the idea of a cone-shaped funnel for clearing bees from super is not new. 'There is nothing *new* under the sun;' but if you have adopted the 'cone,' and used it as described by 'A Dealer,' it is a pity you did not give bee-keepers the benefit of your 'find' by publishing it as he has done.—EDS.]

ANOTHER 'CURIOUS EXPERIENCE.'

[339.] *Apropos* of that of Mr. Samuel E. Howse, I may mention that when returning some bees this year, and destroying cells (Carniolans, of course), I got a few bees about me which had to be brushed off while going to the house. Arrived there, I took off my coat to get rid of any others, when, lo! there was a queen crawling up inside. But, then, we know how cunning or shy they sometimes are, and how they will dodge round the bottom bar of a frame. Once, in a bee-tent, we picked her majesty up from the ground, one of few that had got off the board.

I think the carbolic cloth is a useful and cleanly thing. Yesterday, after removing the upper tier of a hive, a crowd of robbers made their appearance, though the stock was a strong one. There was considerable excitement for a long time, and carbolic powder helped tobacco to disturb the enemy; but I think if I could have wiped a wet carbolic cloth about the front of the hive it would have had some effect. It happened, however, that my mixture had just run out, and my cloth got dry. I think the removal of the honey had filled the surrounding air with its odour.—C. R. S.

JOINING BEES IN AUTUMN.

[340.] I am puzzled to know what best to do with my bees. I have three box-hives containing bees which I purchased two years ago. These do not pay, as I have only taken honey from one of them, and one seems, so far as I can judge from the outside, to contain a great deal of drone comb. These three have increased to ten stocks in straw skeps, and I am anxious to put two or more together in a bar-frame hive, and, as I fear they are getting weaker, think, perhaps, it ought to be done as soon as possible, but don't quite know how to go about it, as I have only had two years' experience in bee-keeping.

I have taken this season nearly twenty pounds of super honey from the young swarms. I am anxious to continue, and as there are several bee-keepers in the parish and none working on modern principles, I should like, if possible to persuade others to try. I have the little hand-book published by the Association, and have just obtained the pamphlet on the *Management of Straw Skeps.*—(Rev.) D. E., *Launceston.*

[Any joining together of bees intended for building up stocks in frame hive must be done at once. Full particulars of the operation will be found in the two books you have.—EDS.]

SUPER CLEARERS.

[341.] The 'simple super clearer,' mentioned on page 416 (No. 325), seems feasible, but I should like to know what becomes of the *young* bees which are generally found on the supers?—STANMER.

[We shall be glad if some of our readers who have had any experience of the above will report results.—EDS.]

BEE-KEEPING IN NORTH LINCOLNSHIRE.

[342.] I send you a short account of the honey season here, which is about over with us, except where a little heather honey may be gathered, and as I have been informed by several bee-keepers about, it has been a poor season, but not so bad as 1888. The crop of what you have called this year 'honeyless white clover' has been enormous with us, and hives boiling over with bees ready for work if we had only had warmth and continued sunshine. Some of my stocks have enough food for winter, after giving me a nice surplus—others will require feeding.

I have reared a few queens in nuclei for my own use this season, but the weather has been very much against their mating, some of them having been twelve or fourteen days before meeting with a drone.

I should like, Mr. Editor, to see a few accounts in the *Journal* from bee-keepers who have given Carniolan bees a fair trial this season. Mine have, like last year, been a complete failure. Queen-breeding and swarming has been all the go with them, but no honey. I have given them every attention so that they might have a fair trial, so I shall clear my apiary of them this year and have none but the English bee, which I think in a good or bad year, with proper management, will give as good returns as the foreigner, 'with less trouble.'

I hope our Association may keep on steadily improving, and receive all the help and assistance possible from those who would like to

assist the labourer to better his position, and save our little workers from the abominable sulphur pit.

I shall be glad to give every assistance possible to those in this district who may wish to become members.—G. W. EDLINGTON, *Brigg*.

NAPHTHALINE FOR FOUL BROOD.

[343.] I would like to report progress since my query (101, p. 297) was answered. I can't report a cure, although I'm not without hope. My hive is a long one, taking fifteen combs. I've administered two doses of naphthaline, about a quarter of an ounce, perhaps less, each time. A heavy super (twelve standard frames) being on at the time, I put the crystals in a heap at the entrance, and puffed them in with an empty smoker. Last week, after taking off the super, I carefully examined the combs below, beginning in the rear. The first comb, heavy with honey, went to the extractor: the next seven were nearly full of brood, most of which was healthy and hatching, a cell here and there being diseased. The front seven combs had no brood, and were nearly full of pollen and honey. The hive is well filled with bees.

I judge from the above that—1. The case is hopeful, very little disease being visible, plenty of healthy brood being present, and the hive being crowded with bees. 2. The naphthaline seems to have checked brood-rearing in all the front half of the hive. What do you think? I await your opinion before giving more napthaline. 3. Is the solution of carbolic for washing hives to be of the same strength as that for quieting bees, or stronger?

A few words as to honey harvest. The above hive has given me 5¼ gallons of run honey this season (we sell by measure in this district). My other stock has given about 3½ gallons, extracted and sections. In 1887 I secured 2¼ gallons from both; 1888, nothing; 1889, 5¼ gallons; 1890, 8¾ gallons. So you see 1890 has been comparatively very good here. Early fruit-blossoms and mixed flowers gave the bulk of it. —J. P. S. ASHTON, *Falmouth, Cornwall*.

[It speaks very highly for naphthaline as a remedy for foul brood if it has had the effect of checking the progress of the disease in so bad a case as yours undoubtedly was. Removing and destroying all diseased brood at the start no doubt helped you, and we shall be very glad to have a further report when brood-rearing again begins. Meantime cut out any diseased cells you may find in the combs.

1 & 2. Don't blame the naphthaline for checking brood-rearing; it is quite general this year to find very little brood in hives at the date you name, and for the stock in question to have seven combs of brood is a very strong proof that the odour of the remedy does no harm in that way; but after brood-rearing has ceased for the year we would advise the discontinuance of any further doses until the queen again begins to lay in early spring. 3. For disinfecting hives use a solution of at least double strength.—EDS.]

REPORT FROM KENT.

[344.] Among the many gloomy reports from bee-keepers this season, you must, I am sure, be pleased to receive now and again a more encouraging one. I began the summer with thirteen stocks, and from these I have had 565 lbs. of honey and ten swarms; my strongest stock producing eighty-three pound sections, so that I think you will agree with me that I have no excuse for numbering myself among the grumblers. This result was practically obtained by the third week in June, little or nothing having been done after the three weeks' wet weather set in at the end of the month. My stocks were all strong, packed with bees and brood by the end of April, and so were ready to take advantage of the fruit-bloom. I began taking sections off in the middle of May, and it was certainly during the following five weeks that almost all my surplus honey was stored.—GERARD W. BANCKS, *Darenth, Dartford*.

LANCASHIRE AND CHESHIRE B.K.A. SHOW AT BIRKENHEAD.

The above Association held their annual show of bees, honey, and appliances in connexion with the Wirral and Birkenhead Agricultural Society on the Society's show-ground at Bidston, near Birkenhead, on the 3rd and 4th inst. Favoured with fine weather on both days, it is recorded as the most successful exhibition ever held by the Agricultural Society since its inauguration forty-eight years ago, about 1150*l*. being taken in the two days, and the number of entries exceeded by 300 those of last year.

The bee and honey department, with which we have to deal, was, on the whole, very satisfactory, and if the number of entries was not so large as the liberal amount offered in prizes might have led us to expect, we all know the reason why, besides being cognisant of the difficulties experienced this season when honey shows (and especially northern honey shows) are concerned. In the appliance class only one competitor put in an appearance, the fact of the year's dealing being practically over when September arrived no doubt accounting for the want of competition in this class. Mr. Harbordt's collection was, however, so thoroughly up to date in all departments, and consisted only of such really useful articles, that it would have held its own in a large competition.

That the county competition, for which tempting prizes of 8*l*., 4*l*., and 2*l*. were offered, failed to secure an entry is easily accounted for in such a season. The class for best exhibition of honey from one apiary also did not fill, causing regret, but no surprise. The class for best twelve to twenty one-pound sections looked very well indeed: the whole of the exhibits being well raised on the staging, and full against the light, gave the honey in comb a very attractive appearance. Extracted honey

was very good, several of the samples being really first-rate. The class for novelties produced seven entries, among which were Webster's super clearer, and a new cylinder extractor for sections and loose pieces of comb: but, seeing that the latter was too small for ordinary frames, it seems a useless multiplying of appliances to introduce a third machine between the same maker's small one for sections only and the usual size for taking standard frames.

Mr. Harbordt showed (not for competition) the simple super clearer mentioned in *B.J.* of August 28th, and it was favourably reported on by the judge.

The following is the prize list:—

For the best and most complete collection of appliances.—P. Harbordt (Liverpool), 1st.

For the best comb honey in sections, from twelve to twenty pounds in weight.—Harry Wood, 1st; Thos. Walker, 2nd; Chas. A. Grimwade, 3rd; W. G. Preece, jun., 4th.

In the above class, the judge awarded a special (equal first) prize to Mr. Tom Sells, whose exhibit was staged late.

For the best extracted honey, from twelve to twenty pounds in weight.—Wm. E. Little, 1st; Thos. Jackson, 2nd; T. B. Hinton, 3rd; Harry Wood, 4th.

For the best sample of beeswax.—Daniel Holme, 1st; Alfred Beale, 2nd; T. Jackson, 3rd.

Novelties and useful inventions connected with bee-appliances or the products of an apiary.—W. B. Webster, 1st; Thos. Louth, 2nd; Wm. Griffin and A. Beale (equal), 3rd.

The judge, Mr. W. Broughton Carr, of London, afterwards held an examination of candidates for third-class certificates in the bee-tent, and of the four who presented themselves, three were successful in passing, viz., Messrs. John Oultram, John Hale, and Wm. Leatherbarrow.

WOODLANDS HALL FLOWER SHOW, SHROPSHIRE.

This show was held on August 28th at the Woodlands Hall, near Bridgnorth, and included the parishes of Glazeley, Deuxhill, Chelmarsh, Chetton, Upton Cressett, Middleton Scriven, Stottesdon, Sidbury, Billingsley, Highley, Eardington, and Morville. Prizes were offered for honey in the comb and also for run honey. In the unavoidable absence of Mr. J. E. Roden, who had been asked to judge the honey, the awards were made by Mr. Alderman Burton, of Bridgnorth, and were as follows:—

One pound of honey in comb.—1st, Edward Rogers, Eardington; 2nd, Chas. Morris, Endon Burnell. One pound of run honey.—1st, Chas. Morris; 2nd, Rev. H. Morris, M.A., Stottesdon.

Mr. Roden, Oldbury, exhibited (not for competition) forty-eight one-pound sections, which were awarded first prize in the open class at the recent show at Shrewsbury; and also an attractive novelty in honey, also awarded first prize at Shrewsbury.

LLANIDLOES FLORAL, HORTICULTURAL, AND COTTAGERS' IMPROVEMENT SOCIETY.

The fourth annual show of this Society was held on August 28th. Several prizes were offered for honey, bee-driving, &c. Taking into consideration the bad season a very creditable display was made. All the honey was very good, especially the comb honey, being the best that has been seen in this part of the country this season. The judge (Mr. H. P. Jones, Dinas Mawddwy) awarded the prizes as follows:—

Class 1.—Best twelve one-pound sections.—Prize 10*s.* 6*d.*—1st, Mr. Thomas Lloyd, Cilmery Station, Builth; highly commended, Mr. John Dewhirst, Knighton; highly commended, Mr. Abraham Hamer, Knighton.

Class 2.—Best twelve one-pound bottles of extracted honey.—Prize, a hive, value 10*s.* 6*d.*—1st, Mr. Abraham Hamer. A special prize was also awarded to Mr. T. Lloyd.

Class 3.—Best exhibit of comb and extracted honey.—1st, Mr. George H. Peate, Glaullyn, Llanbrynmair.

Class 4.—Bee-driving competition.—1st, Mr. Abraham Hamer; 2nd, Mr. John Dewhirst.

BEE SHOWS TO COME.

BEES, HIVES, HONEY, ETC.

September 10–11.—Derbyshire B.K.A., in connexion with the Derbyshire Agricultural Society. Annual show at Derby. Nearly 15*l.* besides medals and certificates offered in prizes. Hives and appliances open to all England.

Queries and Replies.

[210.] *Introducing Alien Queens to Straw Skeps.*—On the morning of August 27th, I removed the queen from a driven stock along with a few workers and kept them in a small box till 8 o'clock p.m., when I removed the queen and put her in a tumbler alone and without food for forty minutes: I then took her to a supposed queenless hive—as it had still drones in it—gave a few puffs of smoke at feed-hole, then inverted the tumbler and let her walk down to beginning of hole, when a few bees came up and smelt her. I then covered up hole with glass still on, and at 10 o'clock p.m., I noticed a little cluster of bees just outside feed-hole under glass. Next morning I saw on the cloth I had laid below alighting-board only two dead workers and a drone: the hive seemed quiet and settled until the second day after, when the bees were busy driving the drones out. The same night at 9 p.m., I noticed a small cluster of bees on alighting-board, and, blowing lightly on the bees to make them move, I found a nearly dead queen, which I send for your inspection. It was a clear case of 'balling.' The questions I ask are:—1. Is the dead bee the hive's own queen,

which was a drone-layer? 2. As the bees were two days before throwing her out, may she be the queen I introduced? 3. Why were they driving drones from hive all the 29th inst.? I followed accurately the directions given in Webster's *Book of Bee-keeping*.—E. T.

REPLY.—1 and 2. No; she is evidently the alien queen you introduced. 3. The excitement caused by the presence of a strange queen has caused the expulsion of some drones. You have not 'followed accurately' Mr. Webster's directions just at the introducing point.

[211.] *Dead Brood in Hives.*—On examination of one of my hives to-day, I found four frames dotted here and there with a few depressed capped cells. I only commenced bee-keeping this year with new hive, &c., and a large swarm of Carniolans. The hive I find is full of bees, queen still laying, but not a quarter of a pound of honey altogether, and now I fear a worse trouble—foul brood. I have therefore cut out a piece of comb, and herewith forward it to you for your kind inspection. I have at once commenced to feed with salicylic syrup. I have a hive of half-bred Ligurians, and another of blacks, but both of these are as yet free from suspicion. I do not notice any disagreeable smell on opening the suspected hives. The bees are lively and very spiteful.—W. WATSON.

REPLY.—We are glad to report no worse trouble than that the bees in hive are about starving for want, and in consequence, the nearly mature brood is perishing for lack of warmth. Strong stocks of bees in this condition will allow brood to perish when they are themselves foodless. Continue feeding and all will go on well.

[212.] *Beginning Bee-keeping.*—My experience in bee-keeping began in September, 1889, when I bought two stocks, one in a straw skep and the other in a box. Then I did not know when it was best to buy bees; *now* I do. I bought them by deputy, and could not see them till August of this year. Of one I had in spring poor reports; no queen could be seen, no brood, and bees were getting less in number, then none at all. Of the other stock I had good reports of activity early in the year. But soon bad tidings of that reached me; fewer bees were seen, and still fewer as weeks passed on. One day about the middle of July the keeper of my bees saw an unusual stir among them, a great many flying about in front of the box hive. She was busy with her little field of hay, so did not stay to see what was up with the bees; but, alas! when she returned all the bees were gone! —where to she did not know. So ends my first investment. During the winter I had made preparations for swarms in the coming spring by purchasing frame hives and a good many appliances, costing me in all about 7*l*. You will say, as I feel, that this is rather discouraging. But I am not going to be discouraged yet, for I love the bees too much for that, and could wish that I was near them myself. Well, in July last I could be seen seated in a country garden, under apple-trees, watching some new swarms at work which I had bought, and spent many hours admiring the activity of the little creatures. Before I left them for home I had a look into the frame hives, bringing into use my smoker, which acted admirably. I found one hive stuffed, as it seemed to me, with bees, for I had never looked into a hive before. The frames, especially the centre frames, were crowded. I raised one or two of the outer frames, but found the beautiful rich combs *without honey!* I was in fear of chilling the bees, and did not disturb the centre frames, so cannot say whether there is any brood there. I noticed that in several of the outer frames the foundation strips had not been touched by way of comb-building. The second hive was in a better condition as regards honey, for some cells were sealed, but more honey was evidently needed. I also saw some brood in the second hive, but it was a too hasty examination—my first—and I feared too much exposure for the bees. I send you a piece of comb from the box whose bees absconded, and would ask:—1. What is the probable age of the combs of such dark colour? 2. Is it diseased, and, if so, why is the pollen there? 3. What was the cause of the bees leaving? 4. Before I left I began to feed my two new stocks with syrup, half a pound per day each for three weeks. Is this right? 5. If they are fed in this way, do you think the frames with strips of foundation will be completed and honey stored in them? 6. Does the number of bees prove the presence of a queen? 7. Ought I to be sure there is a queen in each hive before winter sets in? I shall be greatly obliged for your answers to above questions, and I know you desire to help those who love bees. I may say I love my little bees. I wish to care for them in every way, and with your help will do so. Wasps are beginning to trouble the bees, but a little sweetened beer did for a good many of them.—G. B.

REPLY.—1. Probably from four to six years. 2. No disease is present, and comb contains only healthy pollen. 3. Queenlessness and consequent dwindling. 4. Continue feeding till each hive has about twenty pounds of food at the time of making them up for winter. 5. No, we think it unlikely that full combs will be built. To make bees build comb so late as this, and in such an autumn, would require very liberal and constant feeding and a large population. 6. No. 7. Yes, this is absolutely necessary. Without a queen the bees will be useless in spring. The bees will evidently not suffer at your hands for want of being well cared for, and we judge that you are not investing quite with a view to profit, otherwise it might be said that your expenditure of so large a sum as 7*l*. for hives, &c., with an apiary of only two stocks, was decidedly extravagant.

[213.] *A Bundle of Queries.*—1. Is enclosed heather the species from which most honey is got? 2. In making a twelve-frame hive, must there be room for a dummy-board as well as twelve frames? 3. Will bees live in a quarter-inch plate-glass hive through the winter if

covered up very warm? If so, would it do to use American cloth next to the frames? 4. Is there any special advantage derived from having boards on top of the frames, as you mention on page 409 of *Journal*? 5. In a frame of honey I took, there were a few cells filled with a colourless, tasteless, dense fluid; can you say what it was? 6. If I buy a five-pound lot of bees at the beginning of September and put them on frames of foundation, will they have time to draw it, and store sufficient syrup to last them the winter?—E. Herd.

Reply.—1. Yes. 2. What is called a twelve-frame hive usually has a dummy-board as well, but many bee-keepers only insert the 'dummy' when it is necessary to contract the hive. 3. We have safely wintered bees in glass-walled hives, but they are not good, as the moisture condenses on the glass in cold weather, and runs down on to the floor-board, causing internal damp with its consequent risks. 4. Yes! for by their use we always can keep the quilts close down on top of frames all round, and can feed on centre board without messing the quilts with syrup: for manipulating they are also useful in many ways. 5. No, not without seeing it. 6. By giving careful attention, they will partly accomplish what you propose, but we don't quite approve of the plan so late.

[214.] *Queen Passing through Excluder Zinc.*—Kindly give your opinion of enclosed queen in next *B. B. J.*, as she will persist in getting through excluder zinc, though for three years running she has been a good breeder.—John Hounsom.

Reply.—Queen sent is a very slim and dwarfish one. We found no difficulty in passing her body through the ordinary perforations in zinc excluder. Small queens can only be accounted for as with dwarfs among human beings; they are the exception, not the rule.

[215.] *Price of Honey.*—Will you give me your opinion of the enclosed sample of extracted honey through your columns, also at what price it could be sold? It has not been strained, but the wax shreds have been skimmed off.—H. C., *Launceston, Cornwall.*

Reply.—Sample of honey sent is a good one for the season; good in colour, consistency, and very fair in flavour. Its value, however, must depend so much on the demand, and so greatly do prices vary that it is out of our power to say at what price it could be sold this season.

Echoes from the Hives.

Honey Cott, Weston, Leamington, September 2nd.—The season here has been very indifferent, but not so bad as it has been in some parts, as the bees gathered sufficient to keep breeding going on full swing. I have taken advantage of the combs being more free from honey than usual to transfer twenty stocks from my old hives, that I had in use before the standard was fixed upon. I had long wished to get them all on standard frames, so thought this a good opportunity. Have begun feeding and have already got some stocks fed up for winter, but am very much annoyed with great numbers of wasps—they are quite a nuisance. I do not recollect ever seeing so many before. Well, as the season has been so bad, we must make the best of it, and hope for a better one next year. It must be very gratifying to those who have got a nice lot of honey this year: I should have liked a little more, but must put up with it like many others.—John Walton.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

P. C. (Cuddington).—The queen sent had never been fertilised, and consequently was quite useless.

Robin (Strabane).—The bees have died out just from paucity of numbers and consequent inability to hatch the brood from lack of warmth. There is nothing pointing to disease as the cause of dwindling.

A. Mitchell, W. M., and Assam.—Samples of comb forwarded are all affected with foul brood, that sent by 'Assam' being of a malignant type, for which we would advise nothing short of burning the combs, frames, and bees. The safety of the other stocks requires this. In the first two cases refer to *B. J.* for June 26th, p. 307, and July 10th, p. 329.

G. W. H.—So much depends on locality and weather that we cannot take the responsibility of saying whether it would pay you to move your bees to the heather, four miles away. The heather sent is the honey-producing variety, but it must not be forgotten that more than that is required. It should grow on high ground if possible, and the higher from the sea-level the better. Lowlying moors do not produce honey at all freely.

H. B.—From the appearance of bees sent we should judge them as being strange bees from some hive, deserted perhaps through impending starvation or queenlessness. The torn condition of the wings and the slimy bodies—through loss of pubescence—point to their having been old bees, killed and thrown out of the two hives they endeavoured to enter.

*** *We are again compelled to hold over several queries, &c., till next week.*

NOTICE.—We would ask our correspondents to take notice of the removal of our office, and request them in future to address all communications relating to the literary department, &c., to 'The Editor of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*'

THE

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Editorial, Notices, &c.

BEE-READING FOR WINTER.

Now that the active work of the bee-keeper's year is rapidly drawing to a close, and all his hopes, successes, failures, and disappointments have come and gone, it becomes a serious question for us to consider in what way we shall best be able to keep up the interest in bees and bee-keeping during the coming long winter-time. The fact that there is vitality enough in the pursuit to maintain the continuous headway it is making is now clearly demonstrated, for never in the world's history did so many persons keep bees as at the present day. Bad seasons have their depressing influences, no doubt, and we must always allow the gloomy forebodings of persons of a certain temperament to have vent; but when they have 'had their grumble' even *they* stick to their bees, and prepare for the good season (!) *next year*. Then, does it not augur well for the future of bee-keeping when men who have experienced the bright as well as the dark side of the business—men in humble circumstances, as a good many bee-keepers are—will strain not one but a good many points to provide for the safe wintering of their little apiaries?

No doubt a good deal of disappointment has this year been felt among one section of our bee-men at the small amount of return for their labour. In the north especially is this the case, and yet letters received only a day or two ago from bee-keepers who have had no honey at all, but who are at present engaged in getting rid of sugar by the hundredweight, convey no more gloomy views than to say: 'We are disappointed, but not discouraged, though I am on my fourth and Mr. D. has started his fifth hundredweight of sugar.' When a spirit like this is possessed by men who are not beginners, but experienced bee-keepers, it proves that there is something beyond profit which attaches them to the pursuit.

This brings us back to the question of how the interest felt by readers in their weekly *Bee Journal* when all is alive and doing—and many have 'bees on the brain,' as their friends put it—may be maintained at a time when bees have been cared for and are at rest, and when the bee-keeper is, in the orthodox axiom, enjoined to 'rest and be thankful.' It must be borne in mind that *we* do not 'shut up shop' in the winter. Moreover, we have a curious anxiety in watching that no diminution takes place in the number of pennies dropped weekly into the treasury, as the dreary and dull winter draws on us; and we feel that a purpose, useful as well as satisfactory to all concerned, will be served by carrying out the idea—first mentioned in a leader some few weeks ago—of publishing a series of short papers on specially important features of bee-management. They will be written not with the idea of our being able to formulate anything very new or startling, but as tending to keep up the interest in the *B. J.* during the winter months, and also to serve the purpose of a full and complete reply to queries relating to difficulties which are constantly occurring in the apiary of the ordinary amateur bee-keeper. In this way we hope to serve a double purpose, for readers must pardon us for saying there is a tendency on their part to save themselves trouble—at our expense—when wanting information on bee-work. It is so easy to say, 'I want to drive some bees and unite them to my stocks; please say how it's done.' This, and similar questions, are put to us scores of times in a year by readers who have bee-books in their possession, and who regularly have their *B. J.* to refer to, and yet ask us to repeat an 'oft-told tale' requiring pages of writing and type-setting. So we intend that the forthcoming papers shall form a

permanent reference on such matters as complete as we can make it, and any hints or suggestions from readers which will add to the value of the series, will be thankfully received and acted on.

Far be it from us to curtail in any way that portion of our pages devoted to 'Queries and Replies' by even a single line; we do not underrate the value of that department one bit, but merely wish to avoid unnecessary repetition, and at the same time to be able to refer querists to a fuller reply than could ordinarily be given.

This is one portion of our scheme. The other is to furnish information, in these papers, on such questions as preparing honey for sale, packing honey for travelling and for sending to shows, sending bees by rail, treating foul brood, wintering bees, &c., together with various winter occupations for bee-keepers: in fact, to deal with any subject of importance which may occur to us or be suggested by others; and we invite readers to give us the benefit of their views as to the various subjects which may be included under the heading, 'PRACTICAL BEE-PAPERS, *for Winter Reading*.' The series will be commenced in the course of a few weeks, and be continued once a fortnight till completed.

UNITING BEES.

[In consequence of several inquiries as to the best manner of uniting stocks written by bee-keepers who have failed with plans which in the hands of others are perfectly successful, we print below from our monthly, the *Record*, an article which will serve as a reply to several correspondents.—EDS.]

SIR,—As the time is at hand for thinning out weak colonies by uniting them to their stronger neighbours (on the principle, eh! that 'union is strength?' or, at least, that 'strength is safety?') allow me to put before our B-fraternity a plan of uniting, which I have lately tried with complete success, and which, as I have not seen it described, or heard of as being tried by any one, I may be pardoned for designating St. Bruno's method of uniting.

First, as to the old methods. We have tried here both the recognised ones, namely, (1) union by shaking all bees from both stocks in front of one hive and sprinkling them with scented syrup, or (2) union without shaking off or mingling of bees, by contracting one stock to the front of its hive, and placing the combs and bees of the other to the back, keeping both stocks temporarily separated by a frame, whose sides have been smeared with carbolic acid. This, for a short time acts as a deterrent, and by the evaporation of the acid both colonies are supposed to become so odoriferously assimilated as to be prepared to shake hands all round, and to wonder 'where all these other beggars have been to while the hard work was going on!'

Both these methods, or adaptations of them, have been tried here, but have always been attended by a good deal of bloodshed, and the arousing into action, not only of the thieving proclivities of their otherwise innocent and hard-working neighbours, but what is far worse, of the regicidal propensities of the *unionists* themselves.

Now, I believe the new method will be found to obviate all fighting, robbing, and queen-killing—at least I can answer for it in the three only cases we have as yet tried. As to its practical application, in *some* kinds of hives it may be done with utmost ease, as I shall endeavour to show later.

In *theory* the plan involves *an actual separation*, but at the same time a *moral union* of the two stocks during the space of *two days*. In *practice* it is nothing more or less than the supering one lot of bees (say a queenless stock) over the brood chamber or body-box of the other colony, *putting between them a sheet*, not of *queen*-excluder zinc, but of *bee*-excluder zinc: in other words, imprisoning the supered lot for two days by means of perforated zinc, through the small holes of which the bees cannot grapple with each other. The scent of the lower stock rising up for two days through the ranks of the supered enemy and *vice versâ*, the stocks gradually become assimilated in smell, so that when the divider is removed, or, if necessary, exchanged for a queen-excluder, everything goes on exactly as if nothing had occurred: the queen is perfectly safe and not a single combat takes place. A few dead or dying will be carted out, which may look like the result of fighting; but I believe they will always be found to be the few who have died or been injured during the period of their incarceration. In proof of this, before the stock below is astir, and before removing the divider, let a dozen or two prisoners escape by the top quilt, and watch them pass in by the guards below. So much, indeed, by this plan does the spirit of the one come to pervade the other, that in one instance in which the queened stock had already killed their drones, and the queenless one overhead, of course, had not done so, on opening the hive to remove the divider the latter was found strewn with massacred drones, which the prisoners had slaughtered in true sympathy with their droneless step-sisters below, instinct assuring them of the presence of a mother somewhere in their proximity, and therefore assuring the bee-keeper also of her safety on his removal of the zinc divider. Curiously enough, the prisoners had begun to assert their natural desire to clear their abode of useless and deleterious matter by piling up the drone carcases on one corner of the divider.

As regards the practical carrying out of the new method. Where body-boxes are made so as to fit one over the other, as in the so-called 'doubling hives,' the operation is sim-

plicity itself. The under-stock is prepared by the adjustment over its frames of the divider (a sheet of perforated zinc tacked over a frame three-eighths inch thick), and the other, with the use of a little smoke, is separated from its floor-board towards evening, and allowed to stand for a short time upon a couple of blocks until the bees have all 'drawn in,' when it is quietly lifted on to the other stock.

With us, however, as our body-boxes are not suitable for 'doubling,' it was necessary (1) to displace the body-box of the future prisoners, (2) to stand in its place their super, propped with three-eight-inch wedges, on their own or another floor-board, (3) to shake all bees from the body-box on to a swarm-board fixed in front of this super, and then (4) to proceed as above. If the weather is warm I think it best to leave only one thickness of calico over the super, so as to reduce the temperature caused by excitement and the desire to escape. Care must, however, be taken to pin or weigh down this quilt securely, and, of course, to keep it as darksome as possible.

As the operation must necessarily be completed in the evening, the hive need not be re-opened until the *third* morning, although two days are sufficient to ensure success. Another slight advantage is gained by this method in that the stocks need not be removed *close* up to one another prior to union, for during the two days of incarceration the now one hive may be gradually moved towards, and on to, the position formerly occupied by the prisoners, and so be *in situ* to receive them on their release.

As regards the union of two queened stocks, I have captured one queen first; but where the keeper is indifferent as to which queen survives, he may, I think, with perfect safety allow the queens to fight it out when the perforated zinc is removed. (See Mr. Desborough Walford's letter in *Record* for August, p. 96.) It is, however, an experiment I have not yet tried; but as I shall have an opportunity of doing so during the coming month I shall let you know what happens, and especially whether I hear the two queens uttering their peculiar war-note.

Finally, the same principle can be equally well carried out, as I have tested, by means of a division-board of perforated zinc inserted between two lots in the one body-box. Your own make of hive, Mr. Editor ('the W. B. C.') is admirably adapted to this end, for by using the loose inside body-box on the 'parallel' system the bees in possession are first contracted to, say, the six front combs by means of the perforated zinc divider; they are then imprisoned by quietly twisting them right round to the back; the whole hive is then placed on the stand of the to-be-united stock, inserting the combs of the latter as the front combs of the future colony; and lastly, during the two days' imprisonment, the hive is gradually moved back towards, and on to, its former position.

Hoping to hear of some trials of the above method on the part of bee-friends—I remain, yours, &c., S. J., *St. Beuno's College, St. Asaph.*

Correspondence.

The Editors do not hold themselves responsible for the opinions expressed by correspondents. No notice will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITORS of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements*).

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

BEE-PARALYSIS AND LIGURIANS.

[345.] Perhaps the following, *re* what has been called 'bee-paralysis' may be of interest. Last autumn, by way of experiment, I bought a Ligurian queen (from Messrs. Abbott Bros.), and introduced her into a stock of blacks. This spring I was very much pleased with her, and in the beginning of June the Ligurians were ahead of any of my stocks of blacks (browns I should prefer to call them). After that, however, they appeared to me not to be getting on so well; but not till July were the symptoms described by Major Shallard observed, and every fine day since then hundreds of them have crawled away, never to return. Being from home most of the summer, I only quite lately observed Major Shallard's letter, and therefore haven't tried the salt cure. If, however, sea breezes are any good, they ought to have been cured long ago. The apiary is nearly 500 ft. above sea level, and less than a mile from the sea, and, as you may guess, gets the benefit of more sea breezes than I could wish. I am thinking of replacing the queen (if still alive; last day I looked I failed to find her, or any mark of her) with a driven swarm, and bidding farewell to Ligurians, though I must say she has been very prolific, or the supply of bees could not have been kept up.

If you care, Mr. Editor, I shall send you a few of the crawlers for examination. The fact that none of the other stocks, now numbering sixteen, have been affected, proves, I think, that the queen is the source of the disease, and not the food got by the workers. There is no clematis that I know of within their reach.

So much for bee-paralysis, and now will you allow me to ask two questions?

1. How do you account for two of my queens becoming drone-breeders late in the spring? I lost two stocks in this way. One was an '87 queen, the other of unknown age, but headed my best stock last year.

2. Are Ligurian drones much different from black ones? The Ligurians reared extremely few drones, but these few were to me undistinguishable from blacks.

I may conclude by giving you the result of the honey harvest. From ten bar-frame hives

and two skeps, with which I entered the honey season, I have 600 lbs. honey (clover, with very small percentage of heather), 500 lbs. of which were got from six bar hives. One bar hive and one skep swarmed each three times, increasing the number of stocks to seventeen.—[ICARUS, *N.B.*

[1. Deposing of queens has been very common this summer, owing to the peculiar season, and many young queens reared to succeed them failed in mating through the bad weather of June and July. 2. The difference is much less marked in drones than in either queen or worker. In fact, it is sometimes difficult to tell a Ligurian from a black drone.—EDS.]

CLOVER AND PRIVET, OR NOT?

[346.] In your answer to me (August 28th), I think you have made a mistake, misled probably by the specimen I sent being so faded and withered when it reached you. I have known and appreciated *white clover* as a first-rate plant for bees for over forty years. The countryman who brought me the piece I forwarded has known white clover all his life, and he calls it *white shamrock*, though it much more nearly resembles clover than shamrock. Its triple leaves are longer, are on a longer stalk, and it is altogether more straggling in its growth than the true white clover, of which, moreover, we have plenty about here. If you insert this possibly some *green* correspondent from the south or west of Ireland may tell us if he has met with a plant so closely resembling clover. Perhaps it is a wild, uncultivated species. Anyway, the bees revel in it.

Two or three weeks ago you kindly told me which was the best kind of heather. We have, as I said, hundreds of acres within much less than a mile, but I can't get the bees to go to it, and I don't believe any one can tell me of anything that can be done. If I take some of the hives to the heather, the distance is so short that at least half of them would come back here and I should lose them. You see, the difficulty is that we have all around us a profusion of fuchsias, as also meadow-sweet (I don't know the botanic name), and other things, to say nothing of the nondescript plant which you say is clover. Now I would much rather bees went to the heather, as the fuchsia is more watery, and has less flavour. I see nothing for it but to let them take their own way, and to rejoice that they have such a happy choice. I live in a comparatively bad bee-district, but I don't agree with your correspondent 'Green Isle' and his *gloomy prospects*.

Now, one more question, and I won't bother you any more this year about bee-plants. Will you tell me what the shrub is of which I enclose a specimen? The gardens about here have it growing very freely, and the bees are very fond of it. Please don't say it is privet.—C. C. P., *Valentia, co. Kerry.*

[The bloom and foliage of the plant sent were crushed and faded, but we were quite able to say that it was not a shamrock of any kind. It may have been the hybrid variety of clover called *Alsike*, because when the blooms are faded it is easy to confound one with the other. Besides, when white clover grows in rich land among rank grasses and herbage it sometimes attains a foot or more in height. If you wish us to discriminate between shamrock and a variety of trifolium, please send a fresh specimen packed in damp moss or something similar. The botanical names of the two plants mentioned are: alsike (*Trifolium hybridum*), white clover (*Trifolium repens*). Referring to the sprig of bloom last sent, what shall we say? Our correspondent rather pathetically appeals to us not to say it is privet. We would willingly oblige him, but unfortunately it *is* privet, and nothing but privet; and to say anything to the contrary will be telling what J. L. Toole calls a 'whacker.' Seriously, it is the large-leaved sort which is often cultivated in single specimens, when it has a finer appearance than when the plants are crowded together in hedges. If the heather growing in such profusion near you was yielding honey at all freely, the bees would soon find it. As they do not visit the place, we judge it is either growing at an unsuitable altitude or the plant is not of the honey-producing variety.—EDS.]

DEFRAUDING HONEY SELLERS.

A SUGGESTION.

[347.] I beg to offer a suggestion for editorial consideration, and if you are inclined to entertain the idea, kindly try the opinions of the readers of the *Journal* on the subject.

I do not know if am particularly unfortunate in my honey transactions, but sincerely hope other bee-keepers have not the same trouble in getting in their money after honey sales, or I am afraid it will thin the ranks more than bad seasons.

In September '89 I sold 3*l.* worth of one-pound sections to a man who has bought on several previous occasions, and in October one-pound and two-pound sections to the amount of 26*l.* 10*s.* to a London firm or company, and in neither case have I been able to recover the money, and have now instructed my solicitor to see what he can do in the matter. Now, as it seems that you cannot judge from appearances, I suggest that a deposit system be established after the lines of the *Bazaar* office, the money being deposited, and notice of receipt sent to the seller before the honey leaves his hands, and held by you until the depositor declares the deal satisfactory, when the amount could be paid over, *minus* a percentage of so much in the pound, or a fixed amount to cover office expenses, &c. I may mention that on two or three occasions I have had answers to advertisements from London addresses describing the writer on a printed billhead as 'family grocer,' &c., but on having inquiries made through an agent the address is usually a small private house, and on these occasions a suggestion was made that I should like the money before sending the honey, and I heard no more. I think this

shows the 'long firm' fraud is not confined to the milk trade, and the deputation from the milk-producers, which I see is to call the attention of the Minister of Agriculture to this matter, might as well combine the two interests. —E. S. READ, *Arundel.*

[We will gladly assist in any practical scheme for protecting bee-keepers from fraud; but, in the meantime, would strongly advise them not to part with their produce without a reference in any case.—EDS.]

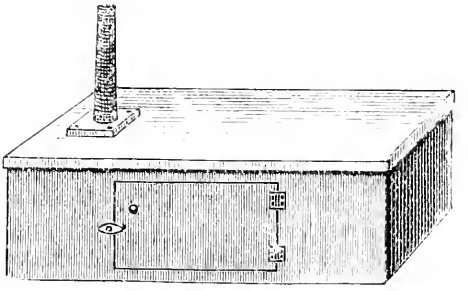
THE SIMPLE SUPER CLEARER.

[348.] Being responsible for giving to the bee-world the above little invention, I think a few words in reply to 'Stanmer' (341) will not be out of place. First of all, I may say that simple as the thing is, it did not occur to me all at once. However, it is not my intention to entertain your readers with a history of my failures and partial successes before I hit upon the right plan: I only wish to assure them that I did not make my *modus operandi* for clearing supers public without first applying it to my own bees and those of neighbouring friends. Finding it in every instance a complete success, I distributed a large number of the cones among customers, and awaited their reports again before writing to the *Journal*. In practice it will be found that young and old bees alike will escape through the funnels and re-enter by the ordinary entrance into the stock hive.

It is too generally assumed that young bees *cannot* fly, simply because under ordinary circumstances they *do not* fly. It should not be forgotten that bees, like other insects, emerge from the nymph state as *perfect* insects. Under a *natural* impulse young bees, like old bees, can and will fly. This natural impulse seems to seize the young bee when stimulated by the example of its elder sisters: it leaves the super of its own accord, and emerges into the open air through the funnels. If we shake a young bee roughly from the comb, it does not appear able to rise again, but older bees have the same appearance; at least, in the old-fashioned clearing process the ground was often covered with bees which somehow had refused to be shaken into the empty skep, crawling apparently helplessly about, and these were nearly all old bees.

On the same page of the *Journal* I notice that a Mr. W. Williams has used the same or a similar procedure (he is not quite explicit on this point) for more than two years, which also goes to prove, if it were needed, that the new method is a success. I share the Editor's regret that he did not make his 'find' public, as the Continental invention and Mr. Blow's suggestion, of which he speaks, are apparently not known much of, even to such authorities as the Judge at Wirral Show, who expressed his opinion of my super clearer as 'a most useful novelty,' while another well-known authority present on the same occasion considered the little cones as, 'the best thing connected with bees which has been brought under public notice during the last five or six years.'—P. HARBORDT, *Liverpool.*

[The super clearer alluded to on p. 439 (338), as mentioned some years ago by Mr. T. B. Blow in the *B. J.*, is described as a long wire gauze tube fixed in a box, into which the super to be emptied is placed. We here give the original cut of the



Continental super clearer. How far it resembles that of Mr. Harbordt, described on p. 416 of *B. J.*, may be seen by comparing the two.—EDS.]

TAKING BEES TO THE MOORS.

[349.] About a month ago we decided to take our bees to the moors. We had been up previously to see when the ling would be in bloom, and found that if we took them about the first week in August, they would have just time to learn their whereabouts by the time the heather was in full swing: so one morning we were up with the lark, and having loaded the waggon, might have been seen wending our way heatherwards. Our correct route was a very circuitous one, but to save 'Shanks's mare,' we made a bee-line for where we expected we should strike the road.

My father had, however, gone the usual way with the cart and some of his bee-friends, so when we hit the road, we were at a loss to know whether he was before or behind us. We thought our best plan would be to go forward, and had another long tramp along the old country lanes, but not overtaking them, we sat ourselves down in a hayfield to await the arrival of 'Cæsar and all his fortunes.' We had fully rested ourselves, and the cart didn't turn up, so we again took to our legs, and after an hour's walk, chiefly over moorland, but in the fields every now and then we were startled by a sudden rustling of the wings of a covey of partridges which we had surprised, and being tired were glad when we finally landed at our destination, a small patch of ground rescued from the moor and cultivated by the game-keeper.

On interrogating the old chap, we found the bee-cart had not yet arrived, so spent another half-hour looking how the bees of a skeppist were working, who had his hives at the lower end of the field. The wind was very strong, so they were not working hard. In a short time the cart arrived, and I relieved it of *my* hive,

while my cousin, a brother bee-keeper who had accompanied me, helped to unload the waggon, containing above a dozen hives.

My hive was successfully uncorked, and I had not to wait above a minute before out came a bee, closely followed by another, which took its bearings, but the wind being so strong I am afraid they would never return.

I stood watching them and they seemed all right. This was a novel experience for *them*, as they were only humble-bees, stowaways on the usual bee-cart. The honey-bees have *their* annual trip to the moors and so have a second crop of honey, why shouldn't the humble-bees? DARCY R. GRIMSHAW. *Cray Hill, Horsforth.*

BEE-PLANTS, ETC.

[350.] This season has been a partial failure here. Up till the middle of July bees were living from hand to mouth, then the lime-blossom opened, and how they did work! My strongest hive gathered fifty-four pounds, another filled forty-two sections, some of which weighed eighteen ounces, and very fine honey it is. Weaker hives, and those that had swarmed collected barely enough to keep them through the winter—keep stocks strong. All bee-keepers should now be busy planting bulbs for early spring flowering. *Scilla Siberica* is one of the best, very hardy, and increases freely from seed. It is a lovely thing, and blooms freely from end of February to April. *Muscari botryoides* (the grape hyacinth) is another graceful little flower, blooms a little later than the scilla, and increases freely, as also does crocus, which should be grown in large patches. Last, but not the least useful, are snowdrops: these bloom first of all, and are much liked by the bees. It is necessary for these to be planted without delay. The Chapman honey-plant has been very fine. It is no uncommon thing to count nearly a dozen bees on one flower-head. I wish I could get some of the farmers to grow it by the acre. I am now collecting seed of the American balsam with a step-ladder, for they are ten feet high, and will send some to all those who applied in the spring, shortly. I forgot to mention that brave little plant that blooms before the snowdrop dares, I mean the winter aconite. I have seen bees within its golden cup soon after the turn of the year.—H. J. SANDS, *Harborne, Birmingham.*

DESTROYING WASPS.

[351.] The old saying, 'First catch a hare, then cook it.' Give the boys 1*d.* or 2*d.* to find a wasp-nest, then in the evening when all is quiet take about the eighth of a pint of turpentine in an old champagne bottle, turn it in the hole and leave it until morning. I have destroyed several nests this season in the neighbourhood as above.—H. O. SMITH, *Julian Bower Apiary, South Lincolnshire.*

CASTLE DOUGLAS SHOWS. A CHALLENGE.

[352.] Owing to some delay on the part of the railway companies, my exhibits did not arrive in time to be judged at the above show. Since then it has been hinted to me by several of my Scotch friends that 'Irish' honey would not have been in the race. Now, Sirs, as I hold a somewhat different opinion, I am not disposed to allow the remarks to pass unnoticed: and in order to prove that I have the courage of my convictions, I make the following offer to the prize-winners at Castle Douglas—viz., to stage three one-pound jars of extracted honey (Irish) equal, if not superior, to what gained the prize at the said show; my failing to do so, I will give the owner of a better sample 20*s.*, also 20*s.* to the funds of the B.B.K.A. This amount is equal to the prize (first) at Castle Douglas. If Messrs. Cowan and Carr will kindly undertake the duties of judging—whose decision I will accept as final—they might mention through the *B.B.J.* where intending competitors might send their honey and the date that would be most suitable for making the award. Meantime those who intend to try conclusions will please send their name and address to the undersigned, and thus give the opportunity of having a fair test between the merits and demerits of Scotch *versus* Irish honey. This offer holds good for one month from this date.—JOHN D. MCNALLY, *Laurencetown, co. Down, September 10th*, 1890.

[Should any of the gentlemen concerned decide to try conclusions with our correspondent, and send in their names to him as requested, it will then be time enough for us to take any part in the proposed competition. Meantime we need only say that if our opinion is asked on samples of honey we shall have no hesitation in giving it.—EDS.]

IRISH BEE-KEEPERS' ASSOCIATION.

The Committee met on the 2nd inst., the Rev. P. Kavanagh in the chair. The Hon. Sec. (Mr. Chenevix) reported that Mr. C. N. White, first-class expert of the British Bee-keepers' Association, had been engaged for a few days to lecture and visit bee-keepers. He lectured at Blackrock on the 26th ult., and on the three following days went on a tour in county Louth, where Miss Rutherfoord and Mr. Oswald Hardy entertained him hospitably, and introduced him to a number of bee-keepers whose hives he inspected. A vote of thanks was passed to Miss Rutherfoord and Mr. Hardy, and also to Mrs. Goodbody for kindly permitting the lectures to be given in Obelisk Park.

WEST CUMBERLAND BEE-KEEPERS' ASSOCIATION.

The first exhibition of this Association was held on the 3rd to 5th of September, and has been a very interesting and successful affair.

It was evident from the entire failure of the honey harvest in Cumberland that local exhibits would be very meagre, and so the Secretary, Mr. E. McNally, had to press on his brothers to come forward, and thus make up the deficient supply.

The Exhibition was opened under the patronage of the leading citizens of the district, and was followed by a dinner to the Judges and Committee, and a special lecture on bee-keeping. The Rev. J. Balfour Robertson, of Stanraer, N.B., undertook the duties of judge of the honey section, and presided at the dinner, and gave the lecture (inaugural). Special services were also rendered by Mr. Robertson during the opening day in pointing out some of the weak points of Cumberland bee-keeping. Altogether, his visit to Harrington will be long remembered by West Cumberland bee-keepers. During the three days of the Exhibition it was very fairly patronised by visitors from the surrounding districts, amongst whom many interesting discussions took place on the exhibits. The different members of the McNally family were the principal exhibitors and prize-winners in the honey section.

The floral section was also well contested, and formed a pleasing set-off to the usual appearance of a honey show. Mrs. Dick, of Harrington, a lady bee-keeper of the district, presented the medals and prizes to the successful competitors on Friday evening. The following are the principal prize winners:—Observatory Hive: William McNally, Glenluce; Unpainted Frame Hive:—1. William McNally; 2. Stewart McNally, Harrington. Amateur Hive:—1. James Clark, Distington. Collection of Hives and Appliances:—1. Stewart McNally; 2. R. E. Banks, Workington. Sample of Beeswax:—1. W. McNally; 2. Daniel Holmes, Ulverstone; 3. S. Hastings, Winder Station. Display of Honey:—John D. McNally, Laurencetown, Co. Down. Twelve one-pound sections:—1. John D. McNally; 2. Daniel Holmes; 3. William Southward, Distington. Twelve Jars of Honey:—1. James Clark. Twelve Jars of Heather Honey:—1. William McNally. Twelve jars of Granulated Honey:—1. John D. McNally.

LADIES' SECTION.

Six one-pound Sections:—1. Mrs. Southward, Distington; 2. Mrs. Salkeld, Distington; 3. Mrs. Braithwaite, Frizington. Six pounds of Run Honey:—Mrs. W. McNally, Glenluce. Honey Cake:—1. Mrs. W. McNally; 2. Mrs. E. McNally, Harrington; 3. Miss Atkinson, Harrington.

Collection of Honey Goods:—1. Ebenezer McNally, Harrington. Special Honey Display:—Harrington Co-operative Society. Collection of Diagrams, &c., on Bee-keeping:—1. Ebenezer McNally. Twelve bunches of Bee-Flowers:—1. William McNally; 2. John Heron, Harrington; 3. Mrs. Dick, Harrington. Samples of Honey Wines:—1. Ebenezer McNally. Humorous Description of Bees:—1. T. W. Johnson, Harrington.

CHILDREN'S SECTION.

Drawing of Beehive:—1. Maggie Bonnar, Harrington; 2. Susan McNally, Harrington; 3. George McNally, Harrington. Drawing of Bee:—1. George McNally; 2. Susan McNally; 3. Maggie Bonnar.

GALLOWAY HONEY SHOW (N.B.)

I was agreeably surprised, on entering the Show in Castle Douglas, to find my name at the top of the list in the 'Open Class.' Mr. Howard, Peterborough, was judge, and his explicit and intelligent explanations during the evening were highly appreciated by the busy bee-keepers present. Every one was highly pleased with Mr. Howard's decisions, and I understand that he visited our bee-centres during his week's stay, and I trust he will publish his notes of what he saw. There was a fairly good turn out of 'pots' at the show, considering the scarcity of good nectar this season. This class, open to the world, was instituted a year ago for the purpose of testing the Borgue parish honey against any other parish in Scotland, but this once highly-lauded honey will have to take a 'back seat' now, for as yet it has failed to come into the prize list.—W. R.

Queries and Replies.

[216.] *Carrying Home Driven Bees.*—I have eight skeps of bees to drive, and to take them by rail about forty miles. Which way will be the best? Would the plan do as described on page 424 of the *Bee Journal* of using boxes, and cutting a hole in each end? 2.) If so, could I not put two skeps in each box?—W. NORFOLK, *Chelmsford.*

REPLY.—1. We do not quite understand our correspondent's query. The plan described on p. 424 was given by us as our own plan, and as the best we could recommend, therefore to ask us to say 'would the plan do as described?' seems just a little superfluous. 2. Yes, two stocks may be joined and carried home thus, but we prefer 'uniting' at home.

[217.] *Queen Introduction.*—I have been a constant and deeply interested reader of your *Journal* for some time past, and have learned much from its pages. My bee-keeping, however, extends to about three years only. I have now twelve stocks in bar-frame hives. You will see that I am but a novice, and have much to learn. I therefore venture to ask your help in reference to the queen sent herewith. On the 6th inst. I examined a stock of Carniolans for, as I expected, a young queen, but could detect none. To remedy the supposed queenlessness, I, in the evening, introduced a fertile queen I had on hand, and, as you advised, spread a sheet in front. Yesterday morning I found the enclosed queen on the sheet. It is not the one I put in,

as she was much larger, and not of such a black hue. Will you kindly say whether this is a queen, and if so whether fertilised or not? The weather about the time the young Carniolan would leave the hive for the purpose of mating the drones was unsettled and windy—about the third week in August. There were then plenty of drones in several hives.—W. WINTERTON, *Nenedale House, Wellingborough.*

REPLY.—The queen forwarded is no doubt the one you introduced. There is always an alteration in the appearance of queens after they have met with a violent death. Whether the queen has been killed by the bees or by yourself it is not easy to say, but the head is crushed in such a manner as would cause death.

[218.] *Phenol Solution.*—1. Several of my hives have the frames covered with bees: brood in centre combs, but very little sealed honey in them. Outside combs full of sealed honey. Should I wait until the brood is hatched and remove them, or let all the frames remain? 2. Phenol for syrups and spraying for foul brood: say what quantity of water required in each case to one ounce of carbolic acid. 3. I have used a simple super clearer (325) for six years, and have never seen a bee return.—ALPHA.

REPLY.—1. Remove two or three of the empty combs after the brood has hatched out, and winter the bees on the remainder. 2. carbolic acid (crude carbolic) is not suitable for bee-food, or for curing foul brood as described. Phenol (pure carbolic) solution as sold only is used: one ounce of the latter being well mixed with a pint of water, and one ounce of this diluted solution is added to each pint of brood. 3. What form of super clearer have you used, and in what manner have you used it?

[219.] *Beginning Bee-keeping at the Wrong End.*—I started to keep bees about two weeks ago by buying a hive with eleven frames, and stocking it with three pounds of driven bees the last week of August. I have no knowledge of bees, but I see they have started to build their combs *across* instead of *in* the frame. What shall I do in that case? Will they manage to make comb and store enough food to winter on if well fed? What is the use of vinegar in the syrup? There are no bee-keepers near at hand to help me, and any hints would be very acceptable. It has been a very wet summer. Are native bees a good kind to keep?—A JUNIOR BEE-KEEPER, *Glasgow.*

REPLY.—You have unfortunately begun bee-keeping at the wrong end. A very elementary knowledge of how it is done would have shown you that bees, to build straight combs in a given space, must have guides of comb foundation to keep them right. Buy a small book on bee-keeping, either *Modern Bee-keeping*, price 6*d.*, or Cowan's *Bee-keepers' Guide-book*, price 1*s.* 6*d.*, and read up the subject. Referring to the combs built across the frames, it is not a very difficult task to put them straight if the combs are not more than 'started,' but for a bee-keeper with a fortnight's experience it is difficult to say whether you could manage it or not. The frames will require lifting out, the combs cutting away from the top bar and tying in the frame straight, by fixing a thin lath below the comb and running a couple of tapes round it and over the top bar, thus suspending the comb close up to the under side of the bar until fixed there by the bees. Try the experiment with one of the outside frames, and report how you succeed. Bear in mind the bees will need about twenty-five pounds of syrup, and see that the hive is set perfectly level on the ground.

[220.] *When are Hives Queenless?*—On looking through my hives I find there is no brood and not too many bees in them. There is plenty of room for eggs and brood. Am I to conclude by this that the queens are *non est*, seeing that the drones are all killed? I am not sufficiently adept to find the queen: I will be glad to have a reply soon; as it is important I should re-queen at once, I suppose? You may be interested to hear that the season about here has been fairly good. I have taken 158 one-pound sections from five hives all beautifully filled, beside a great many half filled—too many by far, I am afraid, for good management.—H. R. MARSHALL, *Barnham, Bognor.*

REPLY.—Because there is no brood in the hives, it by no means follows that they are queenless, for brood-rearing ceased early this year because of the stoppage of honey income: however, as some feeding up will be required, try and start a little brood-rearing by giving syrup at once. Examine the combs in a week or so, and if no sign of brood is seen, there is nothing for it but a careful inspection of each comb till the queen is found, or the hive proved to be queenless.

[221.] 1. Could I remove a driven hive of bees in a bar-frame hive about three hundred yards from here this week? They have been driven a month. 2. Would honey mixed with syrup make suitable food? If so, what proportion of the former to the latter? 3. What would be a fair price per pound for a frame of honey just taken from the hive? I want to place it in with the driven bees. 4. In scenting syrup with essence of peppermint, about how many drops would you add to a gill? 5. What causes the bees in some hives to lie out on the alighting-board in great numbers each day if fine?—S. WILLETT.

REPLY.—1. It would be very unwise to do as you propose. The bees should not be moved till winter, after a long spell of cold weather. If moved now many would return to the old stand and be lost. 2. Honey and sugar-syrup may be mixed and used if desired. 3. To buy combs of sealed honey is too costly a proceeding for us to advise its adoption. As much sugar could be got for a half-crown as would feed up the stock, while three pounds of honey in a frame of comb might be worth the same amount. 4. About one drop. 5. Want of room and ventilation.

[222.] *Joining Skeps to Frame Hives without Driving.*—I commenced bee-keeping this spring with one hive of Carniolans on eight frames. I have now altogether four stocks, two skeps and two frame hives, one of the latter full of bees and honey, but none in sections; one skep the same, the other skep and frame hive both weak in bees and honey, the frame hive being also queenless. I want to unite the two latter. Can I do it by placing the skep on the frames, covering it over, and leaving it for a time? I am feeding up the frame hive. As a novice, it would be easier for me than the recognised way of driving.—A LEARNER, *West Brighton.*

REPLY.—There are two difficulties in the plan you propose: (1) The risk to the queen in the skep when the two forces join: and (2) the fact that if the bees should unite peaceably your double colony will make the skep their home, and refuse to take proper possession of the frame hive below. You may overcome the first by parting the bees for a couple of days by a sheet of perforated zinc laid over the top of the frames before setting the skep on, and when the zinc is withdrawn the bees will join all right; but the second can hardly be managed without some form of driving. It will not be at all difficult, however, after the joining has taken place, and all gone on right for a few days, to turn the skep up, and, fixing it up against the flight-board of the frame hive, to drive the bees into the latter by tapping the sides of the skep with the open palms of your hands till they run up and enter the frame hive.

[223.] *Combs in Skep broken down.*—What can I do with a stock of bees sent me from the country in a straw skep a week ago? Through some mismanagement part of the combs have broken down, and about half the bees are dead. Being the first bees I have ever bought it looks like making a bad start, but I will be glad of your advice.—A. S. P., *Bexley Heath.*

REPLY.—If sufficient combs are still left in the skep for the bees to cluster between, and there is food enough to provision them till March next, they may winter safely: but if you could manage to fix the dislodged combs on a light floor-board, by rearing them up between wood skewers pushed into holes in the board, and slip the skep over them, it will increase the chances of the bees coming out all right next spring. You can but make the best of a bad job.

[224.] *Bees Refusing Queens.—Uniting.*—In the middle of June I cut out all the queen-cells from a stock that had swarmed, and caged a queen, as they were a vicious lot: but they killed her, and two other queens I have put in, and I have finally united them to a driven lot. What was the reason of their continually refusing queens? What is the best way of uniting driven bees?—E. M.

REPLY.—When a 'vicious lot' of bees has killed one or more queens in the attempt to re-queen, it becomes increasingly difficult to overcome their animosity towards a stranger, and rule-of-thumb methods must be dispensed with. We cannot say more than this, because the failure may be attributable to the method of the operator, or to circumstances quite beyond our ken. The same may be said in reply to your query on uniting. Some persons fail entirely in carrying out what *we* consider the best way. When uniting driven lots of bees we throw them down on a sheet and let them run into the hive together: but if you have tried any other plan and have succeeded, stick to that plan till it fails.

[225.] *Late Transferring to Frame Hives.*—I have at present nine strong stocks on the heather in straw hives. I have prepared against their return five wood hives, and intend uniting. I have no drawn-out combs, and thought of giving them frames with full sheets of foundation, and feeding with syrup, &c., transferring only the comb with brood in, and taking *all* the honey, honey being at such a premium this season in this district. Will you kindly say whether you consider this advisable, and whether, at the end of September, the bees will draw out the foundation if kept well quilted?—NOVICE, *Ripon.*

P.S.—The heather is here yet in full bloom, and the last few days of fine weather the bees have been working with a will, trying to make up for lost time.

REPLY.—We hope your sanguine anticipations of a good heather season may be verified, but cannot promise quite a successful result of the plan proposed. You cannot get heather honey (such as will bring premium price) from old combs in straw skeps. Good heather honey in sections *is* fetching a good price, but pray don't overlook the difference. Should you decide to try transferring to frame hives, operate on two skeps only, and see if the result is satisfactory before upsetting the whole nine lots of bees. Remember, it is a trying call on the vital energies of bees to start them building combs and storing their winter food after October sets in, and we think it is more than likely to be a failure, or at the best only a very partial success.

[226.] Kindly give me a reason for the following facts:—One of my hives of hybrid bees being extremely vicious (in fact, we dare not go to the garden without being veiled), I determined to destroy the queen as this was her third season, and on the 22nd of July I introduced a young, laying, black queen, which the bees subsequently killed: so, having another young queen laying in a nucleus by the 18th of August, I threw all the bees from stock and nucleus together on to a sheet, and then drove all into the hive, where they settled peacefully together. About a week afterwards they commenced to kill off the drones, and on examining the hive I found the queen was laying very well. On Monday, the 8th inst., on making a close examination of the hive, again imagine my surprise when I found in one of the hives three queen-cells, one newly formed empty, one

containing a maggot, and the third sealed over, with a fine young queen. I might state the hive contains fourteen standard frames, with more or less honey in each, a little worker brood, maggots, and eggs, but *no drones*. Now what is the reason of the bees raising young queens when the reigning queen is only two months old, and no drones?—J. B., *Durham*.

Reply.—Mrs. Tupper very happily met such curious questions as you raise by originating the axiom, 'Bees do nothing invariably.' It is evident the bees in your case went a bit wrong in raising queen-cells not needed, but they will settle the matter all right in their own way if left alone.

[227.] *Amount of Food for Wintering Bees on.*—1. I have three hives with ten frames each packed with bees; two of them have a few score grubs and brood, the other has about a frame full of brood. All the frames (except the little brood there is) are completely filled with syrup and partly sealed. Are these in a fair condition for wintering? 2. I have two other hives with eight frames; six of them are full of bees, with a good amount of brood. Will they stand the winter, or should I unite them? 3. I have a four-pound lot of driven bees; they cover about six frames—no brood. Will they stand the winter, or should I unite them to one of the six-frame lots? They are on worked-out combs, and plenty of syrup—about five frames. —T. G.

Reply.—1. We should say, Yes; but it is on the supposition that there is from eighteen to twenty pounds of food in each of the hives. 2. The bees, if properly fed up, should stand the winter all right. 3. It is a question for your own decision. If fed well, four pounds of driven bees on ready-built combs should winter all right.

[228.] *Young Queen passing through Excluder.*—Last week I took a crate of sections off one of my hives. In doing so I noticed several live drones amongst the bees. On looking over the frames below I could not find the queen, and began to think they were queenless, but on examining the sections I found the queen among the bees in the crate. By some means she had got through the excluder, and, I presume, could not get back. The sections, with excluder, were fixed about the beginning of June, and the bees swarmed about the middle of that month. I cannot say how long the queen has been above the excluder, not having noticed anything wrong with them. A friend informs me he is of opinion that the queen, through having been shut up so long in the sections, has had no chance of being fertilised, and, therefore, lays nothing but drone eggs, and will be useless next spring. 1. Is this correct? 2. Has the queen been injured, and if so, to what extent?—Vine Cottage.

Reply.—1. An examination of the sections will clear the matter up. If the queen is breeding drones only, she is unfertilised and worthless. If worker brood has been reared in the sections, she has been mated before passing through the excluder zinc, and will be all right. 2. Above reply covers your second query.

Echoes from the Hives.

South Cornwall, August 29th.—It is possible now to form some estimate of the produce in this neighbourhood. Next to that of 1888 I should say that this has been the worst season for a decade. Then weak stocks gathered but little and died about in batches, being not numerous enough to maintain sufficient animal heat. But this has been a great breeding season. It has seemed all along as though enough honey was brought in to stimulate the queen, and some stocks, weak at first, have increased wonderfully, and if we had but had one fine month—four weeks in July would have done it—what a harvest we should have had! But week after week we hoped throughout June and July, during which months I really don't think we had at any time more than two moderately favourable days in succession. Then August opened well for five or six days, and we re-arranged crates and hoped a few more sections might be filled; but no, the weather reverted to its previous condition; honey was being taken down to stock, and so off came the last of the crates. And what have these produced? I have no more than ten finished sections from any hive; some neighbours have rather more, other 'a few.' Some have done better with extracted honey. I hear of one hive which will produce some thirty-six pounds. The best I have would yield me fourteen or fifteen prime and four unripe from a top tier, but not an ounce (literally, I believe) below. Indeed, just now I substituted a half-filled frame for an empty one just for present emergencies until I could attend to the stock completely; and attention will have to be given, and no mistake, for 'you can't eat your cake and have it,' or eat all your honey and expect your bees to live on what is left—for there is any number of them to be fed, though in the autumn they do at times diminish rapidly. You say that sometimes a queen will lay 3000 eggs per day in early summer. You don't refer to Carniolans, otherwise you might have been disposed to add another nought. I can certify, with so many others, as to their reproductive and swarming powers. I can answer for eight queen-cells at least in one frame at the same time, and 'casts' and 'virgin swarms' go but a short way to indicate offcomings; new terms will have to be invented. They have kept it up into this month—'*genus immortale manet*.' I think a dash of the blood may be useful, but I am happy to say I have never thought of running the risk of 'M. T. W.' Poor man! he must have had his work cut out for him. Mine, also, are the most vicious of any I have. I have yet to ascertain whether the swarmers have gathered enough for themselves, but it will be '*sic cos*

non nobis.' Finally, I really think we have had only three or four thoroughly good honey days —hot, clear, and calm—for the season, while I should say that on half the nights moisture has condensed on the inside of the glass of my windows. Nectar cannot be largely developed under such circumstances. Wasps have been scarce. Few honey-bees have been seen on the 'giant thistle,' but numerous humble-bees. There were none of these in the spring that I cared to see. I had almost forgotten to mention that in judging last month I came across a nice show-crate of twenty-four sections (for exhibition only). They were got, the owner said, from apple blossom. This was very early, and as they came from near a large park, I suspect that sycamore had something to do with the case. One other thing I must mention is this, that for the first time in all my experience I have had brood in two sections this year.—C. R. S.

Egham, Surrey, Sept. 1st.—Bees about here have done very well considering the bad weather we have been having, one bee-keeper having taken 100 lbs. of honey, but then he has a good many hives; he has also taken about six cwt. for other people. Another bee-keeper has foul brood rather badly among twenty-two stocks. From my one stock on Bank Holiday I took a rack of twenty-four nicely filled sections, and shortly after a standard frame of honey from them. I sold three at 1*s.* 6*d.* and seven at 1*s.* 3*d.*, so you see I have got good prices. My grandfather and father have kept bees for nearly thirty years in skeps, and never had a stock die, except in very bad years, through starvation. Mine are the 'good old brown bee,' and have always given first-class results.—E. Herd.

Waltham Firs, Great Grimsby, September 4th.—Not seeing an 'echo' from this part of Lincolnshire for some time, I venture to send you my experiences for the season 1890. I began the summer with four bar-frames and two skeps. One skep swarmed on May 22nd: this swarm I put into another skep, hoping for a good honey result and then to unite the bees. However, the swarm is now simply nothing but comb and bees, the old stock being much heavier and seemingly having done better. I supered bar-frames in May; up to the 12th or 14th of June they did well, though one would swarm, and I took from them five dozen complete and good sections. On one of the above dates I put on a fresh relay of sections which were soon partially filled, but, unfortunately, not sealed over; the weather then broke, becoming cold, rainy, and even when fair, sunless. Therefore with it came an end to my honey-taking, a sad let-down after so bright a beginning. Within a radius of twelve miles some people have done better, others worse, so I am by no means disheartened with my bad luck. A friend writes me from Malton that their ten bar-frames have not yielded them an ounce of honey, neither are the inhabitants of the hives provided for the winter; *all* need feeding. I shall have to feed but can do so pretty cheerfully with a take of five dozen sections and ten to twelve pounds of run honey. Here we rely greatly upon the white clover after the bean crop is over and the meadows cut, and as it has failed us there is no hope left. I am going to do some uniting, as I find it pays much better to feed *strong* colonies; bees being plentiful, the careful ones ought to come out well next spring. The general verdict is 'A very bad season.'—Bee Kay.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

Mouche-à-Miel.—1. Of the three sugars sent we should prefer the 'dust of Tate's cubes' at 2*d.* per pound. 2. The hives should each be fed up to twenty pounds of food in each, including what is now in the hives. 3. We do not think it necessary to use any packing between the hive and outer case if the latter fits tight and keeps all dry.

E. M.—The honey sent has no predominating flavour. It is partly from blackberries and late flowers.

Little Wales.—Comb sent is badly affected with foul brood. With twenty colonies in close proximity to the diseased one it would not be advisable to tinker with it, but do as you propose, *i.e.*, destroy it, and so save all fear of infecting the rest.

Morris Jones (Rest Cottage).—Comb contains only healthy pollen.

J. H. (London).—Another *very* bad case of foul brood, and one we would have made short work of by destroying all belonging to it. As you have 'already transferred the bees and combs to a clean hive,' and state that you cured a hive similarly affected in the spring by this means, it may seem hard for us to say you will not succeed this time: nevertheless, if you do manage to cure it we shall be very much surprised indeed.

J. S. (Cardiff).—*Feeding Driven Bees.*—Driven bees with sheets of foundation to draw out into combs should now be fed up rapidly. For full particulars please refer to 'Useful Hints' in *B. J.* for August 28.

H. B. (Weston).—*Bees Dying.*—Feed the bees with salicylised syrup, and if convenient it will be well to *re*-queen the stock.

R. Douglas Strain (Maghnavery).—*Introducing Queen without Removing Old One.*—The dead queen thrown out is certainly the one introduced. In no case will an alien queen be received, whether the one in possession be fertilised or not, unless the latter is first removed.

PIX' (Feltham).—*Books, &c., for a Beginner.*—Do not burden yourself with too many books at the start, but endeavour to master the guiding principles of those you read. *The Bee-keeper's Guide-book* (1*s.* 6*d.*), and a few of the pamphlets published by the B.B.K.A., such as *The Chemistry of the Hive* (3*d.*), *Wintering Bees* (3*d.*), *Bee-keeping, its Excellence and Advantage* (3*d.*), with the leaflet, *How to Commence Bee-keeping*, will be quite enough to begin with.

MIDDLESEX.—*Preparing for Winter.*—Select seven of the combs most nearly full. Extract the food from the others and feed the contents back to the bees. You can then winter the bees on seven combs.

THE

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USEFUL HINTS.

Weather.—Still a continuance of fine weather up to the day we write (23rd), and as a result, besides giving full opportunity for seeing to feeding and preparing bees for winter in comfort, it has proved quite an unexpected boon to bee-keepers, owing to the help and saving of expense through the numbers of stocks which have been enabled to provide themselves with winter stores from natural sources outside. Limes bloomed late and long, and blackberries have yielded well, so that from these, and other odd plants, the autumn ingathering in some parts has done great service. Our own stocks have provided themselves with more than enough, and so no doubt will many thousands of others. The honey is poor—in fact, hardly saleable—but it will do capitally for bee-food. Besides, most honey gathered since the latter end of August has been stored in the brood chamber, and if, as we advise, it is left for the bees' use it will be true economy and a lot of trouble and anxiety will be saved. Not only so, but the bees will come out all the stronger in spring for not having been upset, pulled about, or disturbed by the usual feeding-up in autumn. It has been splendid weather for outdoor bee-work, and those whose location has prevented them from sharing in the late bit of good fortune through the absence of forage have at least been able to do all feeding-up, &c., in comfort.

Winter Packing.—We shall never hope to meet the divergent views of readers on this point; indeed it might be asked, 'Why attempt to do so?' If one man winters his bees safely year by year without contracting hives or taking other precautions of a particular kind, why should he be driven to adopt the method of another who takes quite a different course? It is always wise to try and improve, and to be wide awake to any good thing brought forward; but we do not hold with those who are altogether 'wise beyond their fellows.' The best of us find as years roll on that we have something to unlearn. After trying all the known methods we find it best to pack for winter with impervious or air-proof covering next the frames, and on these about three thicknesses of warm felt carpeting, with a thin board over all. Then we give three inches of space below the combs by means of an 'eke,' or 'riser,' which is slipped under the stock hive, and while there is an entrance extending the full width of the hive within the outer case, the doorway to the outside is reduced to one inch. We remove one of the ten frames the hive contains and insert the dummy in its place, and no further precautions are taken. That is our winter packing; it answers well, and so will other methods of carrying out the same idea, no doubt.

Winter Passages.—Here, again, 'doctors differ.' We have never cut winter passages through the combs in our hives *yet*, and it would be late in the day to begin. The most ever done in this way was allowing a passage for the bees over top of frames by the simple contrivance of a couple of sticks laid across, and even that is not done if stocks are well provided for. But many able men insist on holes being cut in the combs, and when we find the bees taking harm from the absence of such passages we shall cut them. Some place a cake of soft candy over the frames in each stock, to guard against contingencies—a very excellent arrangement *if food is short*. We were much 'taken' with a simple little contrivance described in the *Record* last year, in which the cake of candy is embedded in the wood which forms the passage for the bees above the top bars, and will give full particulars of it, with a sketch, in some additional 'Hints' next week.

BRITISH BEE-KEEPERS' ASSOCIATION.

A meeting of the Committee was held at 105 Jermyn Street on Tuesday, 16th inst. Present: the Hon. and Rev. H. Bligh (in the chair), Rev. Dr. Bartrum, Rev. J. L. Seager, J. Garratt, W. Lees McClure, Captain Campbell, W. H. Harris, R. T. Andrews, and the following *ex-officio* members, viz., Dr. Rayner (Middlesex), W. B. Carr (Lancashire and Cheshire), R. A. Grimshaw (Yorkshire). The minutes of the last meeting were read and confirmed.

Mr. Garratt reported that himself, Mr. Errington, and Mr. Carr, had an interview with the executive of the Bath and West of England Agricultural Society in reference to the formation of a bee-department in connexion with the annual exhibition of that Society, and that the executive had promised to give full consideration to the views laid before them.

Mr. McClure presented the report of the meeting of the Northern Associations' Sub-Committee, held at Shrewsbury on August 20th, recommending that prizes be offered at the next Royal Agricultural Show for the best-constructed bee-tents for use at large and small exhibitions. Resolved, that the report be received and adopted.

Mr. Overton attended the meeting in response to the circular issued by the Committee to the several manufacturers to confer with them in drafting the prize list for the next year's exhibition. Mr. Overton considered that the schedule as arranged for the late exhibition at Plymouth was satisfactory. Letters were read from Messrs. Geo. Neighbour & Sons, and Mr. Meadows, to the same effect. Resolved, that the Exhibition Sub-Committee do prepare the prize list in accordance with the suggestions made for consideration at the next meeting.

Second-class examination candidates, entitled to compete at the above, are reminded that notice of their intention must be given to the Secretary of their County Association not later than October 11th.

DEVELOPMENT IN THE HONEY-BEE.

By R. A. H. Grimshaw.

(*Continued from p.* 435.)

Let us now review another faculty exercised by the bee—the power of recognition of friend from foe amongst its kind. Again our teachers have unwittingly misled us and given us something to unlearn. Very many animals—two, four and six-footed—recognise each other as friends or otherwise by the sense of smell, or by sight, but the bee has been credited with the possession of quite a mysterious power of recognition superior to either of these: she was supposed to plant sentinels at the gate who did not permit any one to enter until antennæ had been crossed with antennæ, and sundry friendly taps had been exchanged on each others' 'supracerebral region,' according to some subtle code of signalling known only amongst their particular species; nay, more, they have been actually charged with conversing in some hidden language forsooth!—giving a password like men-at-arms, telling the results of expeditions where water and nectar may or may not be obtained, narrating exactly where the branch is on which the swarm must assemble before proceeding to the new home already discovered by the scout-bees sent out with that object! They also, in common council assembled, discuss in this marvellous tongue the affairs of the family, what shall be done and what left undone—when the queen-bee shall be superseded, or a swarm sent off, drones turned out, wax secreted, cells of varying kinds built in accordance with the varying requirements of the commonwealth.

These are only a few amongst the many duties known to bee-keepers, settled *in camera* by our bees by means of this subtle language known to themselves only, and generally supposed to be not inferior, if not superior, to that employed by any other animal. I will not attempt to deny the possession by bees of a method of communicating with each other suitable to their requirements, just as (but not a whit better than) we find is the case amongst most other animals; yet we are all of us very apt to attribute effects as we see them, to other than the true causes. When we notice the orderly manœuvring of a flock of birds in the air, wildfowl, pigeons, and migratory birds at autumntime, shoals of fish in the sea, deer and wild animals on the plain, even the very tadpoles and small fishes in the stagnant pond, all of which are wonderfully marshalled about with far greater accuracy than are troops at a review, we are apt to attribute such orderly precision to methods of communication one with another not dissimilar, if inferior, to those used by ourselves, to the giving of instructions by superiors, and the blind, unreasoning carrying out of the same by the obedient inferior members of the social community. Whereas, if we give full value and range to the power of instinct, which we know is possessed in a large degree by most animals, many of these mystical marvels, hitherto attributed to even a higher power than reason, dwindle down into thoughtless driftings with the tide in obedience to an inward impulse implanted in the animal by an ever-present Providence as a means of protection in the struggle for existence perpetually going on between its particular species and its enemies. What is it impels our own humble-bee to burrow into its winter home, coming forth again with the warm beams of spring sunshine, and going round its life cycle? Is it sense or wisdom aforethought which guides the larvæ of many insects to dig deep into the earth in anticipation of hard frost, or which induces the swallows to assemble in their hosts before seeking refuge in warmer southern climes? Or, to return to the honey-bee, is it by a use of reason and language that the worker-bees decide the many momentous questions of the hive?

Let us once for all, in the interests of truth

and science, rend away the charming but delusive veils of fiction, iridescent films, falsely spread over our study merely to mystify us into attributing to the supernatural what may perhaps be not difficult of understanding according to common and well-known laws. Let us think of the bee as deprived of what we call reason (which I take to be a process of mental deduction from cause to effect, a question of pure mathematics), but compensated for this loss by a fuller store of instinct, a blind, mindless guide whose behests it can no more disobey than we ourselves when similarly urged. It may move along by the use of its various instincts in the grooves appointed by the great Director until having earned a fitness to survive, variations appear which enable it to occupy a higher platform than that of its predecessors; or, on the other hand, an inability to maintain its position amongst living things condemns it either to ultimate extinction, or to such modifications of parts as fit it to other surroundings it may find in other districts. So do we find what is called development, or its opposite, on all hands amongst living things. I would far sooner attribute the hitherto wonderful mysteries of the hive to the actions of ordinary senses we know the bee to possess than endow it with a language commonly supposed to be a definite system of codal communication equal to that of the telegraphist, an elaborate production of centuries of close reason. When bees meet bees on the threshold of the hive it seems far more reasonable to me that they are smelling with the antennæ for the presence of the home-odour communicated to the whole household by a fertile queen, or testing and tasting for incoming stores of aromatic nectar and pollen, than asking silly questions as to the whereabouts of the gathering-ground it could only find by the aid of a science the knowledge of which it has taken the highest animal (man) centuries to frame by the aid of his reason. Far simpler is it to wait for the second trip of the forager, and ride out in the wake of the scented bee until within sight or smell of the flowers themselves, using those highly developed God-given senses in a natural way.

The balling of queens, the numbers of virgins accompanying casts, the seemingly insensate repetition of swarming, consumption of stores, rearing of untimely brood, permission of drones and fertile workers when absolutely useless, unreasonable and senseless fanning and stinging, along with many other palpable errors on the part of the hitherto all-knowing honey-bee tell me in pretty plain terms that the bee's language, as commonly understood, is a perfect myth, and that if I want the truth I must rip off the shells of fiction our all too-kind early fathers have hidden it in. I must attribute all the wonders and delightful conduct of our honey-bee to the use of highly perfect organs of sound, hearing, touch, smell, sight, and perhaps taste, coupled with experience handed down hereditarily to which we give the name of instinct. Instinctive habits of alarm, notes of warning, cries of fear, love, and hatred, of peace and war, customs of movement, home-building, food-getting, and young-rearing, and unreasoning provision against a time of coming want, are well-known results of instinct amongst many animals, and our bee may also be justly credited with all these, beyond which I dare not go.

(To be continued.)

Correspondence.

The Editors do not hold themselves responsible for the opinions expressed by correspondents. No notice will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITORS of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements*).

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

SUPER CLEARERS.

[353.] In an editorial note to No. 341 you ask for information as to the 'simple super clearer.' As I have made a number of trials with various patterns my experience perhaps may be of some service.

The first bee-escape that attracted my attention was introduced some six years ago; this was exactly the same as that described as 'a simple super clearer.' I fitted several—perhaps a dozen—hives with these escapes; I know of one now in which these contrivances were fitted by myself quite five years ago. The object then was to allow the bees, which when manipulating got on top of the quilt and behind the division-board, to escape out of the ventilators. From the success of these, although their utility is very questionable, the first super clearer was fashioned upon the same principle. It consisted of a box fitted with a wire net tube or cone, the super being placed inside this box, the bees escaping through the cone (this will be found to be illustrated and explained in my work, *Webster's Book of Bee-keeping*, page 82, par. 130). This was no improvement, as it was exactly the same as the first described, but instead of the roof of a hive being used a separate box was made for convenience. The convenience consisted in this—the young bees, instead of being lost when they emerged by the cones being some distance from the entrance of hive, the exits could be brought up close to the alighting-board, and so they could walk straight into the hive.

The next clearer was 'Boardman's' (1886). This was the same as the forerunners, only that instead of box or roof being used as a receptacle (Boardman could not use a roof, as his consisted of a flat board) an empty body-box was placed on top of hive, the supers placed inside, the roof

put on, and a strip of wood, having a hole in which a wire cone was fitted, fixed over what was the original entrance to the body-box, now extemporised into a super clearer. The bees escaped by this wire cone instead of, as in the 'simple super clearer,' through the wire cone placed in roof. The invention (?) was exactly the same, one person using a body-box as he used a flat roof, and the other a roof or super-cover. Mr. Reese, in describing his experiences with this clearer (*Gleanings*), says, 'Mr. B.'s plan caused more confusion and excitement with the bees, as they were forced to leave the hive and seek the proper entrance. I also discovered that they went out heavily loaded with honey.' In order to attain this end they must, and do, pierce the cappings where there are few open cells in the supers. Mr. Boardman (the inventor) writes (*Gleanings*): 'I discovered that the bees from other hives will sometimes find their way in through the cones at the time the bees are escaping, therefore I would advise care in their use.'

Dr. C. C. Miller introduced (1888) a super clearer upon the same principle as the box clearer, only that the clearer itself was one immense cone, or rather pyramid, of wire cloth, the super to be cleared being covered with this cone as an extinguisher is used to a candle. I never tried this latter (Dr. C. C. Miller's) plan, as the old-fashioned super clearer—a dark shed with door slightly ajar—would have the same, if not better, advantages. I know full well the effect, especially at the latter part of the season, when supers are cleared while off the hive, or rather while having no direct connexion with hive during the cleaning—perforated cappings, spoilt sections.

Another great advance was then made. Mr. Reese invented a clearer as follows:—He formed a box without a bottom to fit on top of frames, and just the size of the super. In the top of this box two holes were made, fitted with wire cones pointing downwards (the height of the box allowing of this); this having been placed upon the hive under the supers, the bees gradually went into the box from supers with very little excitement, and consequently little damage to cappings, as they were still upon and formed an integral portion of the colony during their exodus. This was clumsy as compared to other inventions which followed. The bees clustered in the box, and had to be dislodged before it could be used upon another hive; but it answered its purpose, that of clearing a super, admirably. The horizontal escape was then invented by Messrs. Dibbern and Reese almost simultaneously. One was in the form of a star of wire cloth; at each point (five) was an exit like a tunnel, the base of which being formed by the plane of the escape, allowed the bees to find their way back quite easily, which I found to be the case when making some trials with it. The other was a double pear-shaped cone. This I found was much too intricate, the bees getting jammed, and so preventing both exit and ingress. I then invented the present one known by my name, a description of which was published in the *B. J.* some three months ago. I need not allude to its success, as the letters which appeared in these columns from bee-keepers who had used it are sufficient. I have exhibited it twice, each time gaining first prize. Any one can make these clearers (I have not patented it), so that there is no occasion for readers to cogitate upon 'the axe to grind' adage.

A super clearer, to be perfect, must allow, during the exodus of the bees, free and uninterrupted communication with the body-box, in which are the brood and queen, or it fails. This is imperative.

A case of sections on a super can be, as is well known, cleared effectually from bees by placing it in a dark chamber having small outlets, through which rays of light are admitted, such as a dark shed with door slightly ajar. This, I think, can be called the most simple and inexpensive super clearer. This fails, the same as all the cone escapes where the supers are removed from communication with the hive, from the fact that the bees in super being cut off from all direct communication with rest of colony, brood and queen become disorganized, and at once commence to gorge. In order to obtain the honey for this purpose, they make holes in the cappings, and so spoil the sections both for sale and keeping. But if communication, or a sense of touch, can be kept up between the bees in the supers and those in the body-box with queen during the exodus, and coupled with this none, or very little, outside disturbance takes place (such as subjugation), the bees, instead of becoming disorganized, pass out from the supers on their ordinary business avocations, and not being able to get back, the super gradually loses its population, and ultimately empties itself without any knowledge upon the bees' part of any disturbance; as a consequence the super is left intact. It must be understood that the bees do not rush out of the supers; it is merely the ordinary evolution that takes place in a hive which empties the supers. It is upon these lines that my super clearer was built up.

I should advise every one to put my clearer on without any subjugation to hive. This is easily done by wrapping a carbolic cloth round super at its junction with hive just as it is raised; the clearer can then be slipped under with the greatest of ease.

Another disadvantage of the cone box clearer, I remember, arose when removing supers after a honey-flow. The scent of the honey, which is in direct communication with the outside air, caused a violent disturbance in the apiary. Although, as I observe in my book, 'the bees have not sufficient sense to get back,' yet they flew around in hundreds trying to get in at the cones, round the plinths, and at any crack that might be in the roof. Of course this would not be so in an apiary of, say, one or two hives, unless other bee-keepers lived near.—W. B. WEBSTER, *Binfield, Berks.*

IN THE HUT.

'Get up, get up, for shame! the blooming morn
Upon her wings presents the god unshorn.
Get up, sweet slug-a-bed, and see
The dew besparkling herb and tree.'

[354.] So one thinks these fine autumn mornings, when the slanting rays of the rising sun dazzle, without burning the eyes, with their pale, cool beams, so characteristic of sunrise in the fall of the year, when the vapours of the night are heavy with emanations from the soil, and sickly faint with the smell of decaying leafage; for 'the Hut' is still the bourne of the bee-keeper, it is still the storehouse and museum of all that appertains to honey-getting. Every board of it seems so saturated with the smell of honey, propolis, wax, sting-preventive, carbolic and many other acids (stinks and otherwise), that no wonder every little chink has to be plugged up in order to prevent the bees using it as a drug-store, to be resorted to in times of indifferent health. All in vain, however; when bees mean to be in they find 'a nice opening for a good worker' somewhere, and mine found a six-foot tunnel of iron gas-tube just what they wanted. Yes,

'You may break, you may shatter
The "Hut," if you will,
But the scent (to our noses)
Will cling to it still.'

This morning I and a young bee-keeper are bound for moorland, and at once unstable (is that right, for they are not unstable concerns?) our iron Pegasuses, also tenants of the Hut. We are off in the early morning to see how the bees are doing ten miles away up hill, for 'X-Tractor' is no 'slug-a-bed' when bees are afoot, not on the carpet. At this moment 'methinks I scent the morning air.'* Now it is late hay giving off its coumarin; now the almost similar wormwood; then clumps of wild scabious smelling sweetly of new honey. By-and-by the eye takes in, for its share of the sensuous enjoyment, vast sweeps of rich purple heather in the distance; the ear (not to be left out of it) is enchanted with the hum and droning tone of many insects, the morning song and chirrupings of odd birds, amongst which comes the mournful tale (spelt correctly, I think) of the disconsolate robin, a peculiarly autumn song. Last comes an unmistakable aroma of heather bloom, giving a thrill of joy to the hitherto dissatisfied bee-keeper, who has not taken a drop (of honey) this year, for he knows there's some stuff to get out of the ling this time.

Then we come to the 'Gaping Goose' (*pace* cynic), erstwhile a hostelry alone on the moor-edge, then it became a farmhouse for lack of custom, then a keeper's house, now a series of dilapidated, roofless, tenantless buildings, used as shelter by errant mountain sheep, in one of which (outhouse, not sheep) we lock together in fraternal embrace, by the omnipresent cyclist chain, our machines. Some trustful bee-keepers have planted a few hives in the garth ('to plant,' to settle—not a horticultural term this time), and as we have to walk over the moor two miles at least to the nearest bees (our own), we notice how the loud hum of many busy workers becomes 'small by degrees and beautifully less,' till at a mile it ceases with the occasional bee which seems to have preferred its long journey. This bee makes for the G. G. (our favourite abbreviation). Then absolute silence, and almost immediately is heard the hum of one of our own, for it takes its load off (I mean carries it) in the opposite direction. Gradually the tones get stronger as we advance, until we are in the thick of it; from all of which we deduce that in the midst of plenty bees at the moors work at a distance of a mile, increasing their numbers as the distance lessens.

So far, and the ling will be over at the end of September, I say, '*Viva* the shallow frames!' These were getting nicely filled, but those perverse creatures the bees were leaving the sections severely alone. No doubt they have been filling the brood nest with the choice stuff we wanted upstairs, for we took them up nearly depleted. There is another lesson. Some time ago I advocated in the 'Hut' the feeding up rapidly of brood hive just before taking bees to the heather, clapping on section crates at once on arrival, and forcing the scamps to give *us* their honey store. This was objected to at the time as checking breeding; but 'X-Tractor,' if he don't forget, will pursue this course another year. He doesn't mind what he checks for a fortnight or so if he can check in a good stock of heather honey. We can get bees always, not always honey. *Verb. sap.* from — X-TRACTOR.

* Comp. don't set this up with an H. I *hate* hair-oil.

SHAMROCK.

[355.] I notice that one of your correspondents (346) asks a question about shamrock and clover, and, as we are now in the dull season as far as bees are concerned, it is perhaps permissible to write about something else besides bees, which may prove of interest to many of your readers. Very few people in England, and numbers of Irishmen even, do not know the plant, having never seen it. In consequence, it is often confounded with clover (*Trifolium*) of various sorts, and I have even seen some bits of trefoil hawked and sold in the streets as shamrock. This arises from the fact that it is not obtainable in all districts, not even in all parts of Ireland. It requires for its well-being special conditions, such as a vegetable loam and the shade of woods or hedges. Apart from botanical distinctions, any one can easily satisfy himself whether the plant before him is shamrock or clover by chewing some of the leaves. If it is true shamrock the leaves will be found to have a sharp acid taste, while all clovers are sweet. Further, the leaves of the true shamrock droop or fold back at the approach of evening, or even when roughly handled. These peculiarities are frequently alluded to in Irish songs and

legends; the plant, in fact, is an oxalis, not a clover. There are two kinds of oxalis indigenous to Great Britain. That most frequently met with is a perennial; all the leaves are radical; the flowers are white, and produced singly in April and May. The other sort is an annual, has procumbent, often rooting stems; the flowers are yellow, in small umbels, and produced from May to October. The white sort is a shy bloomer, but, being the handsomer of the two, must be regarded as the true Irish emblem.

I also see, Mr. Editor, that you have to complain about correspondents sending you for identification small portions of plants, crushed in passing through the post almost beyond recognition: as in my business I am often called upon to 'name' things under precisely similar conditions you have my full sympathy. Correspondents act in this manner chiefly through ignorance, not knowing what to send. Besides the flower, portions of the stem with the leaves attached, and in the case of herbs a few radical leaves, that is, leaves springing from the root, should always be sent together, when the name of a plant is desired.—P. HARBORDT, *Liverpool.*

UNITING STOCKS—FLOUR AS A PACIFIER.

[356.] I never did write to a paper on any subject, but on reading the correspondence about the different methods of uniting stocks, especially that of 'J. S., St. Beuno's College, St. Asaph,' I have been induced to break my record. I tried 'J. S.'s' plan some years ago. It worked very well, but it has its serious drawbacks. I will only mention two.

1. It takes forty-eight hours to finish the job. 2. At the end of that time you go to slip out the division of perforated zinc and find it covered with dead bees, suffocated with the fumes from the stock beneath—at least such was my experience, notwithstanding that I gave the upper bees all the ventilation I could.

Now, sir, why all this waste of time? Why this imprisonment and suffocation of the bees, when the whole thing can be done in five minutes, and that, too, without waste or fighting? This is my plan. Say you wish to unite a queenless stock to one with a queen—the most difficult of all unions. Put your queenless bees into an empty box or straw skep; now take off the covers of those with the queen, and after giving them a puff of smoke to quiet them for a minute, take a handful of flour (get some from the 'missis'—most bee-keepers' wives do a bit of baking) and dust the flour down between the frames. (Flour, by the way, is an excellent quieter.) Now draw out three or four frames and lay them down so as to be handy. Take your queenless stock, turn it up, and dust a handful of flour among them also until they are quite white, pour them among the others, replace your frames and cover up as before, taking away all that belonged to the queenless stock. When you return in an hour or so you will find the bees united, blowing at the door, and as happy as possible. I have never known this method to fail. I have convinced several old bee-keepers in our district of it efficacy. I shall be pleased to hear of some of your readers trying this plan, and of how they get on.—A CARLUKE AMATEUR.

[The novel use made by our correspondent of flour as a pacifier of bees is entirely new to us, and we shall be glad if readers will give it a trial and report results.—ED.]

STUNG BY A QUEEN.

[357.] I send you particulars of a new experience to me, and possibly to most other bee-keepers. We are told by many writers that a queen has never been known to sting any person, but my case stands thus:—When driving a skep the other day, I placed the queen in my mouth, as is my usual habit, and had scarcely done so when I was astonished to receive a very sharp sting on the lip. I need hardly say the queen was quickly returned into the hive. I have watched her with no little curiosity to see if she was harmed by stinging me, but to-day (16th) she is alive and laying freely.—R. W. PETT, *Greyfriar Gate, Nottingham.*

[Only in very rare instances does a queen-bee use her sting when being handled, and in your case it would probably be but an involuntary prick caused by a little roughness or pressure while placing her in your mouth. They do sometimes bite (or what may be called a bite) when held too tightly between the lips, but it is to our mind a rather foolish 'habit' to place a queen in the mouth, except when really necessary for the purpose of freeing the hands.—EDS.]

GLAMORGANSHIRE SHOWS—THE SEASON.

[358.] I am exceedingly sorry that I have disappointed Mr. Sims (330) in not turning up in our county shows, especially after my rash challenge.

When this challenge (if it can be called such) was issued, it was my intention to endeavour to give Mr. Sims and others 'a good licking.' Want of time, &c., prevented me entering the lists, and I was fain to content myself with the *rôle* of spectator—a not altogether unpleasing *rôle* in consequence of the efforts put forth by Mr. Sims and other combatants in anticipation of having to do battle with the unknown knight. At last, however, I was permitted to enter the arena, and with pleasing results—namely, to win—at the Pontypridd Flower Show, two 'Firsts' against so doughty an antagonist as Mr. Gay, the county expert, and also to win from Mr. Sims the high compliment that my exhibit was the best that he had seen this season. I thank him heartily, and hope—but with small expectation of seeing my hope realised—that he will be the next to succumb to my prowess.

My summary of the season is: a bad season, but not so bad a one as that of 1888; a year, I fancy, which cured many a bee-fever. In one respect, however, 1890 has proved itself, in my apiary, worse than 1888, and that is in the number of lost and unmated queens. On close examination last week, I found four of my dozen stocks queenless. I also lost one stock from the same cause in May. Do you think, Mr. Editor, that the similarity of my hives and their nearness to each other, being only about eighteen inches apart, would account partly for the result? I am inclined to think so, because two stocks having hives differing in appearance from the others have provided themselves with duly mated queens. Of the queenless stocks I have united two, and given queens to the others —with doubtful result.—EAST GLAMORGAN, *September 7th*, 1890.

[We attribute your queen mishaps rather to the season than anything else. It has been quite a record year for young queens failing to mate.—EDS.]

BEES IN NORTH KENT.

[359.] I send you another report from our North Kent district, and am glad to inform you that our bees have done fairly well, considering the bad season, the average per hive being fifty pounds. The bulk of our honey was stored early in the season, and commenced to granulate immediately it was extracted. I took my first section on May 11th. Have just finished feeding and getting ready for winter. Very little feeding was necessary, as I never extract from frames in brood-box. This has certainly been a better season than 1888, as in that year I only got a hundredweight of honey from five hives, and then had to feed with the same weight of sugar. We have driven a few lots of bees this autumn; plenty of bees, but not much honey; but I notice that the bees are exceptionally good-tempered this year. I have been using bar-frame hives for the last five years, and have only had two swarms. I am sorry to say we have the dreaded enemy (foul brood) with and around us, but we are fighting it with formic acid, naphthaline crystals, &c., and though we have not yet effected a cure, there is certainly an improvement, and we live in hopes of exterminating it in the course of time. The weather during the last three weeks has been splendid, and the bees have been very busy. A fortnight ago the red clover was swarmed with bees, so I took the opportunity of examining some heads of blossom, and found that in most of the flowers there were perforations at the base of the tube of the corolla, and the bees evidently obtained the nectar through these perforations. Whether they were made by the honey-bee, or wholly by the humble-bee, I don't know. I am very fortunate in living close to an expert, and so can obtain advice free gratis.

I hope that our bee-keeping friends who have been so unfortunate as to obtain no honey this year will be more successful next, and that we shall all have honey in plenty.—KENTISH BEE.

NAPHTHALINE AND HONEY.

[360.] Would it not be well to get 'J. P. Ashton' (No. 343) to submit a sample of his honey from naphthalined hive to you, and will you very carefully taste it, so as to decide once for all if the flavour of the naphthaline is in the honey, and please report same in *B. J.*? My reason for asking is this:—I made up two nuclei from a stock that swarmed (to save queen cells), and about a fortnight after was surprised to find a number of sunken cells, which I thought might be foul brood, but did not then know how to distinguish it; but to be on the safe side I dosed said hives with naphthaline, as being easiest and cheapest to procure. They are now in a prosperous state, with brood in all stages, and although never very strong in numbers, have cleared out most of foul brood, what remains being dried up hard, so as to be practically harmless; but the smell of the naphthaline, especially in hot weather, I think must flavour honey, and now, when honey extracted from a hive similarly treated is to be had, is the time to test this point and get it finally settled. I should be inclined to do as No. 343 did, and blow some in at the entrance early in spring, but if you find it flavour honey it will be necessary to advise bee-keepers to be careful. I find the smell much more powerful than that of formic, so that if odour is all you want or get from formic acid, then naphthaline is best for that purpose, whatever it may be when mixed with food.—W. H. L., *Stamford*.

[Perhaps the writer of No. 343 will kindly report as desired, for we have no personal experience whether the odour of naphthaline will cling about honey to its detriment. Referring to the last paragraph of our correspondent's note, the strength of the odour in a remedy is no indication of its effectiveness.—EDS.]

DERBYSHIRE BEE-KEEPERS' ASSOCIATION.

For the ninth time the Derbyshire Bee-keepers' Association held their annual exhibition in connexion with the Derbyshire Agricultural Society on September 9–10. A large tent was erected in close proximity to the Free Baths, and in it was located a display of bees, honey, and appliances. In addition to the amounts offered by the Society, prizes were given by the Hon. F. Strutt, Sir Wm. Harcourt, M.P., Mr. Walter Evans, J.P., the Rev. J. Wadham, Mr. R. W. Spriggs, Mr. H. F. Gadsby, Mr. H. Hutchinson, Mr. W. H. Brindley, Mr. W. F. Atkins, Mr. W. Coxon, the British Bee-keepers' Association, and others. The show was not so large as that of last year, but, considering the unfavourable season, it was a very good one. The quality was not so high as at former exhibitions owing to the cause already indicated, and the Judge had considerable difficulty in deciding upon the respective merits of the various exhibits. In one or two instances the

first prize and silver medals were consequently withheld. There was a capital display of appliances. Mr. Pett, of Nottingham, took the premier position in this department. The staging and the whole of the arrangements were carried out by Mr. W. T. Atkins, the efficient and energetic Secretary, and reflected great credit upon him. By his admirable contrivance the exhibits were set out to the best advantage, and thus enabled the public to inspect the show with pleasure and profit. Mr. C. N. White, Somersham, Hunts, again efficiently acted as judge. During the day he also conducted, on behalf of the British Beekeepers' Association, an examination of candidates for experts' certificates. The candidates were Herbert Hill, Ambaston; George Toon, Newhall; and Charles Wootton, Draycott; who showed considerable skill in the manipulation of bees, and we have little doubt that they successfully passed through the ordeal. The following is the prize list:—

Best stock of English bees with their queen in observatory hive.—1st, John Clark; 2nd, C. Wootton; 3rd, T. M. Bryan.

Best stock of foreign bees exhibited with their queen.—1st, J. Stone; 2nd, J. Clark.

Best twelve sections.—No first or second awarded; 3rd, J. Stone; 4th, Mrs. Strutt.

Best exhibit of comb honey, not less than 12 lbs.—No first prize awarded; 2nd, A. Simpson; 3rd, T. S. Rawson; 4th, B. S. Rawson; 5th, Mrs. Strutt.

Best run honey, not less than 12 lbs.—1st, T. W. Atkins; 2nd, T. S. Rawson; 3rd, J. Stone; 4th, A. Simpson.

For the best run honey, not less than 12 lbs. (for cottagers only).—1st, T. R. Rawson; 2nd, J. W. Rawson; 3rd, J. R. Bridges; 4th, G. Pallett.

Best and largest exhibit of honey in any form.—No first prize awarded; 2nd, A. Simpson; 3rd, J. W. Rawson.

Best beeswax.—1st. W. T. Atkins; 2nd, A. Simpson.

Best beeswax shown by cottagers only.—1st, J. W. Rawson; 2nd, T. S. Rawson.

Best bar-framed hive made by an amateur.—1st, J. Pearman; 2nd, Atkins.

Best bar-framed hive, the work of the exhibitor.—1st, Pett; 2nd, Handby: 3rd, Coxon.

Best cheap bar-frame hive, made by the exhibitor.—1st, Pett; 2nd, Coxon; 3rd, Handby.

Best super.—1st, Handby; 2nd, Coxon.

For the best extractor.—1st, Pett; 2nd, Coxon; 3rd, Handby.

SHROPSHIRE BEE-KEEPERS' ASSOCIATION.

The Show of the above Society was held on Wednesday and Thursday, August 20th and 21st, in connexion with the annual *fête* in the Quarry at Shrewsbury. The Show may be regarded in every way as a great success, the amount of honey exhibited being probably larger than that at any other exhibition in England this year. The manner in which the arrangements were made and carried out by the Hon. Secretary for the comfort alike of exhibitors and judges is deserving of the highest praise, and the Committee is much to be congratulated on having so able a representative. The Judges were—Mr. W. Lees M'Clure for comb honey, the Rev. Jas. Oakley for extracted honey, and Mr. J. Lingen Seager for hives, appliances, &c.

In Class I., for honey, there was only one exhibit, but this was a remarkably good and even one for the season.

Class II. The first prize exhibit was of very good sainfoin honey, but the sections were considerably spoilt by the lace, which was supposed to ornament the boxes.

In Class III. the first-prize honey appeared to be much inferior to the second prize in colour and flavour.

Class IV. contained a very fine sample of honey, which took first prize and silver medal. There was also an extra good sample, for both colour and flavour, shown by Mr. J. R. Horton; this was, however, unnoticed.

In the classes for members only there was but one exhibit in Class V., but that very good. Class VI., for twelve one-pound sections, was a good one for the season.

In Class VII. the second prize exhibit of sixty one-pound bottles of run honey was in part very superior to that which took first prize, but the mixture of two sorts of honey spoilt it.

Class VIII. was a weak one, the first exhibit being only fair, the second not fit for exhibition or use.

Class X., honey trophy (open), was a very interesting one. The stand which received the second prize contained an instructive series of worked combs.

In the open classes for hives and appliances, the first and second prize hives in Class XI. were both useful.

Class XII. contained a very elaborate hive, which received first prize, but this class of goods should not be encouraged in our opinion; and in Class XIII., confined to Shropshire makers, the same hive as in Class XII. was again placed first.

In Class XIV. were two good collections of apiarian appliances by Mr. Whittingham and Mr. W. P. Meadows. Would it not in the future be advisable to limit the number of articles in these collections, as done at the Royal and other important shows?

The bronze medal in Class XV. was awarded to Mr. Meadows for his 'Guinea' honey extractor, than which there is none better in the market. In the two following classes there was nothing new. Two exhibitors in Class XVI. showed identically the same section rack; but the 'extracting table,' shown in Class XVIII., for new inventions, may be recommended as a very good and useful appliance for the apiary.

Classes XIX. and XX. call for no notice, but in Class XX. (bee-candy) the exhibit which

received second prize was very excellent. Unfortunately, Mr. J. Palmer had only sent samples of soft candy, and the schedule demanded hard and soft. Why prizes should be offered for soft and *hard* candy in one and the same class we fail to see. Our experience of hard candy is that bees can make no use of it.

In Class XXII. the prizes fell to hives of Carniolan bees, as no limitation was stated in the schedule, though it was apparently intended that they should be other than Ligurian, as a special prize was offered for that breed in Class XXIV.

The honey shown by the artisans exhibited a distinct advance upon last year, both in quantity and in the manner in which it was prepared for exhibition, and gives good proof that the great attention given to their annual show by the Shropshire Society is by no means thrown away.

The exhibits of bee-flowers were remarkably good and prettily arranged.

In the miscellaneous classes two things need to be noticed, the excellence of the first-prize cake and the extreme 'nastiness' of the majority of the drinks.

PRIZE LIST.

Honey Classes (Open).

I. Forty-eight one-pound sections.—1st, J. E. Roden.

II. Twelve one-pound sections.—1st, W. Woodley; 2nd, H. Wood; highly commended, T. Lloyd; commended, J. Dewhirst.

III. Forty-eight one-pound jars extracted honey.—1st, H. Wood; 2nd, T. R. Horton.

IV. Twenty-four one-pound bottles of run honey.—1st, T. Lloyd; 2nd, E. Griffiths.

Honey Classes (Members only).

V. Forty-eight one-pound sections.—1st, W. G. Preece; 2nd, T. R. Horton.

VI. Twelve one-pound sections.—1st. H. Wood; 2nd, M. Palmer; commended, T. R. Horton.

VII. Sixty one-pound bottles of run honey. 1st, T. R. Horton; 2nd, M. Palmer.

VIII. Twenty-four one-pound jars of run honey.—1st, T. R. Horton; 2nd, Mr. Hamer.

IX. Most attractive novelty in honey.—J. E. Roden.

X. Honey trophy.—1st, W. P. Meadows; 2nd, W. G. Preece; highly commended, Mr. Whittingham.

Hives and Appliances.

XI. For the best hive, price 15*s.*—1st, 1*l.*, C. Redshaw; 2nd, W. P. Meadows; highly commended, Mr. Whittingham.

XII. Best hive, price unlimited.—1st, Mr. Carver; 2nd, C. Redshaw; highly commended, Mr. Whittingham.

XIII. Best hive (confined to Shropshire makers).—1st, Mr. Carver; 2nd, Mr. Palmer.

XIV. Best collection of apiarian appliances.—1st, Mr. Whittingham; 2nd, W. P. Meadows.

XV. Best honey extractor.—1st, W. P. Meadows; 2nd, Mr. Whittingham.

XVI. Best section rack.—Mr. Palmer and Mr. Meadows equal.

XVII. Best feeder.—W. P. Meadows.

XVIII. Best new invention useful to bee-keepers.—W. P. Meadows.

XIX. Best one-pound foundation.—1st, Mr. Whittingham; highly commended, W. P. Meadows.

XX. Best one-pound super foundation.—1st, Mr. Whittingham; highly commended, W. P. Meadows and C. Redshaw.

XXI. Best two samples of hard and soft candy.—1st, G. Lloyd; highly commended, P. Harbordt, Liverpool, and Mr. Palmer, Ludlow.

XXII. Best foreign bees with queen in observatory hive.—1st, W. G. Preece: 2nd, J. F. Roden.

XXIII. Best English bees with queen.—1st, W. G. Preece; 2nd, Mr. Horton.

XXIV. Best Carniolan bees with queen, restricted to the county of Salop.—1st, Mr. Horton; 2nd, Mr. Oakes; commended, Mr. Roden.

Artisans' Classes.

XXV. Best twenty-four pounds comb honey.—1st, Mr. Hamer.

XXVI. Best twelve-pound sections.—1st, Mr. Beale; 2nd, Mr. Brookfield.

XXVII. Best twenty-four pounds run honey.—1st, Mr. Beale; 2nd, Mr. Hamer.

Cottagers' Classes.

XXIX. Best twelve pounds comb honey.—1st, Mr. Bradley; extra, J. Walford.

XXX. Best twelve pounds run honey.—1st, G. Bradley; 2nd, J. Lewis: highly commended, J. Walford.

XXXI. Best six sections comb honey.—1st, J. Lewis; 2nd, G. Bradley.

XXXII. Best six pounds run honey.—1st, G. Lloyd; 2nd, J. Lewis; 3rd, G. Bradley; highly commended, J. Walford.

XXXIV. Best bee-flowers.—1st, T. C. Clarke; 2nd, J. Bradley; highly commended, Miss M. T. Beale.

XXXV. Best bee-flowers (cottagers only).—1st, J. Bradley; 2nd, T. C. Clarke.

XXXVI. Best honey beverage.—1st, Mrs. Beale.

XXXVII. Best preserved fruit in honey.—1st, Mr. Whittingham.

XXXVIII. Best honey confectionery.—1st, J. Shuker.

XXXIX. Best beeswax (Salop only).—1st, J. Evans.

XL. Best object of general interest to bee-keeping.—1st, T. Badcock.

Queries and Replies.

[229.] *Curing Foul Brood.*—About the middle of March we found foul brood in three apiaries, within a radius of half a mile, one stock dead in each, and the rest had been robbing the hives in which the bees had died. We fed all with syrup mixed with salicylic acid solution, washed the floor-boards with the same, and put a little camphor in each, and burnt the frames from the dead ones. It was thought we had stamped it out, but yesterday, on overhauling the lot, three or four were found to be affected as the enclosed piece of comb, out of about thirty stocks. We think it must be foul brood, but not very bad. The whole lot will be doctored again now as in the spring. Can anything more be done? Please say if it is the genuine foul brood? We have had a very poor season here, but not nearly so bad as 1888. Some apiaries have not averaged a pound per hive, while a few have yielded thirty or forty pounds, but only a few. The bees will not want so much feeding as they did two years ago. A large majority of the hives contain hardly any brood.—Thos. Mansfield, *Bridgewater.*

Reply.—There is foul brood in comb sent, but it appears to be yielding to the treatment, and if a fair sample the case is very hopeful. You must, however, be very watchful, especially in the months of April and May next. It might be useful, as helping to widen your experience, to try formic acid in the food of a dozen of the stocks, giving a teaspoonful of acid to each quart of food.

[230.] *Preparing Bees for Winter.*—1. Can cakes of bee-candy (one pound each) be given now, instead of syrup, or when? My hives are 'Buncefield's.' The frames are covered with striped material (ticking), and on this is one thickness of carpet. 2. Will these two coverings be sufficient for winter? 3. If not, what more would you advise? As you know, of course, the roof of the Buncefield hive lets down nearly to the alighting-board in winter. 4. Is that a sufficient side-protection? Since my bees have had three weeks' feeding with syrup they are more vicious than they were, even stinging their caretaker as she moves about the garden. 5. Can you say why? 6. May I suggest that the fortnightly papers you propose writing should be of the size of *Modern Bee-keeping*, that, being bound, they may be conveniently carried about in one's coat-pocket? A good margin would be an advantage.—G. B., *Craven Terrace, W.*

Reply.—1. A cake of soft candy may be given to supplement the syrup given for winter, but the food given now for storing away should be syrup only. 2 and 3. By no means. Bees must be very warmly covered down for winter. Two or three thicknesses of carpet, or a good-sized 'chaff' pillow, should be added to your present coverings. 4. Yes. 5. Bees are usually more vicious in autumn, but with care may be kept from being troublesome in the way stated. 6. Should it be thought desirable to reprint the papers referred to they will probably be issued in pamphlet form—same size paper as the book you name.

[231.] *Amount of Food for Wintering.*—On my return home at the end of August, after three weeks' absence, I found my two stocks had surplus in the sections, and each had a small amount of sealed brood. I had rather expected the bees would have removed the surplus below, and that this would have led to the queen continuing to lay. There was an inch or so of sealed stores at the top of each frame. Since early this month I have been feeding rapidly (about one and a quarter pounds of sugar, made into syrup, each hive per day), and the frames were reduced to seven in one case and eight in another, at which I purpose leaving them. I am desirous of learning—1. How much sugar, made into syrup, I should give them? I often see statements to give twenty pounds of *syrup*, but I do not know how much *sugar* this represents. I have now given about twelve and a half pounds of sugar to each hive. 2. Is it likely the queens have re-started laying, as I have noticed a limited number of bees returning with balls of pollen on their legs?—East Dulwich.

Reply.—1. From about fifteen pounds of sugar the bees will store twenty pounds of syrup, and if they have one inch of sealed honey in each comb they ought to be fairly well stored already. 2. The carrying in of pollen indicates breeding, but only inspection of the combs would make the matter certain.

[232.] *A Worn-out Bee-pasture.*—A day or two ago I rambled on the moors of Blackstone-edge in search of bee-pasture, with the object of removing my bees thither at some future time, if found suitable, about August, for the heather harvest. Years ago these hills on the Lancashire side were covered with heather, broad acres in extent, but, alas! now it is as if a blight had passed over the land. Not a bunch of heather is to be found; only the dry remains, consisting of a few sticks, thin and crooked, here and there, as an evidence that the ground not long ago was covered with vegetation. Inquiring of a farmer dwelling on the border of the moor, and familiar with it for many years, he told me that some years ago bees were brought to the abundant pastures occasionally, but a few years back an insect prevailed in great abundance which acted like a plague, destroying the whole of the heather on the hills. I was myself astonished to find such a change. At one time the heather was collected abundantly to make besoms (or brooms) with, and besom-making was quite a business; but now you could scarcely find enough in several miles to make a single besom with. I should like to have your ideas as to the cause, &c.

There are acres of green patches now on

these moors like the enclosed sample, which seems to be occupying the place of the heather. Will you please name it, state its honey-yielding qualities and when it flowers? Could bees be removed to it with advantage?—JOHN FENTON, *Rochdale*.

REPLY.—Whenever the smoke of factories, and all the accompanying atmospheric changes arising from growing towns, begin to make themselves felt, so soon does the purple heather begin to dwindle, droop, and die away as in the case you refer to. The plant sent is the common bell-heather (*Erica tetralix*).

Echoes from the Hives.

Vale of Clwyd.—Perhaps an 'echo' from this neighbourhood concerning bees would not be unwelcome at the end of a very bad season. I am, like many of your correspondents, sorry to say that this is the worst season I have experienced since I commenced bee-keeping, and that extends to over thirty years; but I am not broken-hearted yet, although I have had no honey this year. I commenced last autumn with seven stocks of driven bees in skeps. I fed them well, they wintered grand; beginning of April and half of May they were in very good condition. I thought they would swarm in May, so to prevent that I put supers on the strongest. They soon filled them and gave me a little honey; but am sorry to say from then to September 4th the weather became very unfavourable, scarcely a day without rain. Although I have a quantity of large lime-trees not over thirty yards from where my bees are kept, the rain kept washing the honey away before the bees could get out in search of same; so I was forced to begin feeding, and have kept on feeding up to now, and intend doing so still for some time. I gave them the honey I got in supers; besides, I have bought and boiled over fifty pounds of sugar, besides giving them candy cakes, so as to see them safe for the winter. I may say that I had one swarm, but it weakened the old stock to that extent that it never rallied afterwards.

During the summer I came to the conclusion to make away with all skeps, and have bar-frame hives; I procured four new ones.

I placed the strongest stock I had on top of bars, covered same well with carpets, served the second strongest the same, hoping they would work down to the bottom part of hive, as I had placed guide-comb for them, and am glad to inform you they did, as about the beginning of August I examined them, and found all right—box full of comb, but very little honey. I took the skep off and drove the bees into an empty skep, and returned them into their respective hives, covered the top well with quilt, and began feeding them again. They are doing well now. I drove two other skeps, and put the bees in another bar-frame hive; then I had three more skeps left. I found them very weak. I rove the three into a skep, and placed them in the other bar-frame I had. I am feeding every day, and now I think they are doing very well, as the weather has been very fine and warm here since the 4th of this month, and I trust that I shall be able to keep them alive and strong through the coming winter, and that I shall be able to manage them much better after adopting the bar-frame hives, and putting the skeps away, never to be used again except for catching swarms.

I noticed in the *Journal* that you made some remark on a correspondent in the *Record* having used perforated zinc to join stocks together. I was pleased to see it, as I am using the same thing for some time now with perfect success; and why should it not answer? It is on the same principle as caging a queen for introduction; she is caged for forty-eight hours.

I have also joined skeps by turning the weakest face upwards, and placing another on top of same, leaving them so for a day or two. They will have joined without fighting, the weakest ascending to the top hive. When I have three or four stocks want making into one, I take a good zinc skep and drive one stock into same, then drive the other stock into the same skep, and so on with as many stocks as you wish to join. I find the bees of the second stock more ready to leave their own stock, having the other bees there before them, and so does the third, and so on till the skep is full, and there is no fighting, and all bees get mixed up well before they are placed in proper hive.

When I want to take off skep or section-boxes from top of bars I have a piece of zinc, about twenty inches square, and to one edge of same I fasten a piece of calico same size as zinc. Then I soak the calico in a solution of carbolic acid and glycerine: then I spread it on the zinc, and push both between skep and top bars: it releases the skep and sends bees to bottom box. I may here inform you that there are several bee-keepers in this locality, some having over twenty stocks, and I am glad to inform you that the *Bee Journal* is taken by many here. If I have not troubled you too much, I would like to inform your readers how I stop robbing by bees. When I find robbing going on I close the entrance in the day and open it in the night, till all robbers get tired of trying that hive.—T. H.

THE HONEY HARVEST IN THE HIGHLANDS.

The honey harvest throughout Elginshire is now practically over, and apiarians have very little in the end to compensate them for their trouble this season. The heavy rains in June and July completely ruined the clover part of the harvest, and as a consequence good clover honey is scarce, and the price high. The heather is now decaying, and very little has been got from it, as it was wanting in substance owing to the heavy rains so prevalent during August. In the Strathspey district apiarians who have been successful beyond the average

are Messrs. MacPherson Brothers, Grantown, and Mr. Stokes, The Farm, Balnastraid. These gentlemen are not far behind last year with their productions, Messrs. MacPherson having sold about fifteen tons of honey. The general rule throughout the county, however, is a great scarcity, and apiarians will have to resort to feeding their colonies unusually early this season. Many depend solely on their production, and will be almost ruined by the heavy losses of this summer.—*Glasgow Herald.*

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

T. S.—Comb sent is affected with foul brood. Use formic acid, as directed in *B. J.* for June 26th, page 307.

L. H. W. (Stamford).—*Super Clearers.*—Your plan is, in principle, the same as that of Mr. Harbordt already printed, and as the latter is so very inexpensive and easy to fix on and take off (merely requiring one tack half driven home, besides being able to make the cone large enough to cover two or three ventilation-holes in roof) it seems the better plan of the two.

Arthur Lang (Clevedon).—The honey sent is of poor quality, and will be with difficulty sold. It seems to be largely privet honey, along, probably, with that from lime and blackberry. You might try the bees with a ripe peach under the quilt, but it would not be a fair test of their fruit-eating proclivities.

J. Lcs Adam (Cumbernauld, N.B.).—The various kinds of crocus are considered the best bulbs to plant for bees' use in spring. Several others are mentioned on page 450 of last week's *B. J.*

THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

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Editorial, Notices, &c.

DEFAULTING HONEY BUYERS.

The several attempts to establish companies having for their object the buying and selling of honey and the products of the bee in this country have, so far, been singularly disappointing in results, and, from some cause or other, all have ended in more or less failure. Whether this has been due to individual mismanagement or otherwise, it is not our present purpose to inquire, but it does seem unfortunate that in a venture with all the advantages of an influential directorate of business men at its head, and for no lack of capital—advantages certainly possessed by the late British Honey Company—but mainly from the want of a steady and reliable supply of good British honey, it should be found necessary to wind up the concern after a few years' working. And thus a need so great as that of establishing a safe and ready market for honey seems an impossibility.

On the face of what has gone before, and in the light of the experience gained, it would appear that the maintenance of an establishment entailing more or less paid assistance all the year round, bears too heavily upon the slender chances of profit when the risks of complete failure of the honey season are considered, and thus it is that, as the inexorable logic of facts has proved, one bad season entails loss of dividend for several years; while two years of honey failure in succession suffice to put a company into the hands of the liquidator. Bearing in mind, therefore, the past history of such combinations as we have cognisance of, it would appear that the precariousness of our British bee-season is such that it is not in the nature of things for a honey company to withstand the strain of the continuous expense with almost no positive certainty of any return at all.

We are thus reluctantly forced to the conclusion that honey companies will not pay—at least, *not yet*. Whatever a few more years may bring about, either in an increased demand for honey, or the possibility of combining its sale with that of other items of trade, or even the recurrence of a few good seasons in succession—an event we are surely within measurable distance of—it is impossible to say; but as the matter now stands it will, in our opinion, be for the advantage of the pursuit if all further attempts to infuse vitality into ventures of this kind are, for the present, given up.

We yield to none in the desire to benefit honey producers in every way possible, nor do we wish to minimise the desirability of establishing a safe and ready market for all the surplus honey the country can produce; but instead of being in any way an advantage, judging by the nature of some transactions reported, it appears as if dealing with honey companies has in some cases resulted in serious loss to persons not too well able to bear it.

The letter (No. 347 in *B. J.* of September 18th) from a correspondent who mentions one item of 26*l.* 10*s.* which he has so far been unable to recover for honey supplied twelve months ago, has been followed this week by a communication (printed on p. 472) from Mr. Wm. Woodley, who is a well-known honey producer, who has also lost rather heavily by his dealings in the same way, and will serve to explain why we deem it necessary to say a word on the subject.

Our first-named correspondent suggests the establishment of a deposit system whereby sellers may be guaranteed against fraud. This suggestion is so simple, and moreover, involves so small an amount of trouble in carrying it out, that we at once express our willingness to receive sums of money on deposit, and, after advising seller of receipt of the same, to hold the

said sum until completion of the sale and purchase, it being understood that we are not expected to arbitrate between the parties in cases of dispute, but that our share of the transaction begins and ends in receiving the cash and paying it over to the seller, on receiving notice that all is satisfactorily arranged.

The buying and selling need be hampered by no further condition beyond furnishing a fair sample in order to fix prices. This done, buyer to remit purchase-money to this office subsequent to the seller forwarding the bulk. If all is satisfactory buyer to notify us to that effect, when cash would be forwarded to seller by cheque or postal order, as preferred, less the usual charge of sixpence to cover cost of postage, &c. If postal orders were sent, cost of same would, of course, be deducted.

Mr. Woodley's idea of publishing a 'Black List' in *B.J.* is not to be thought of; the law of libel in this country is very wide in its application, and not only is this so, but serious injustice might easily be done unintentionally by such a course. Our duty lies rather in the direction of pointing out some means by which bee-keepers may be protected from loss either through unfortunate companies or unprincipled persons.

The first of these risks may be avoided by adopting the deposit system mentioned above, while the second will cure itself if bee associations do their share of the work in arranging for the sale of members' honey, either on the lines followed by the Ulster Association as printed on p. 428 of *B. J.* for September 4th, or by any other plan the executive may prefer.

The statement of the writer of No. 347 that 'long firm' frauds still require guarding against, recalls a personal experience of our own, which may convey a lesson in that line. Some fourteen years ago we narrowly escaped being victimised by one of this class of swindlers, who, in the character of a pious member of the Society of Friends, concluded a rather large purchase of honey by correspondence, and generously offered to take 'more at the same price if quality was found all right.' In his anxiety, however, he overdid the part, and aroused our suspicions, so the honey was sent a rail journey of twenty eight miles in charge of a cute and trusty messenger; as a result, we lost our customer, but saved the honey, for the pretended Quaker was discovered to be a professional swindler.

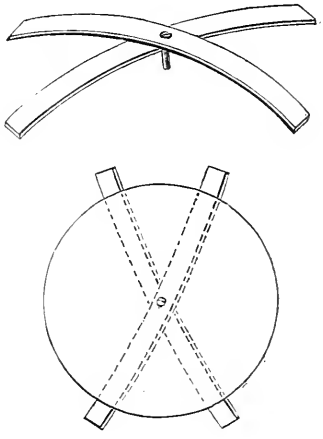
If it is considered desirable, we would willingly devote a special advertisement column to short announcements, at a low rate, of honey for sale during selling season in order to facilitate such transactions and to bring together buyers and sellers, so that the profits of any middleman may be saved. In short, we are not only willing, but anxious, that honey producers may have full advantage of any and everything the publicity which this *Journal* affords in the way of disposing of their produce, and with this object any suggestions made will receive every attention so long as their aim is the greatest good to the greatest number.

USEFUL HINTS.

(*Continued from p.* 457.)

Winter Passages.—The contrivance referred to last week, which serves the purpose of providing a winter passage for the bees, is intended as an improvement on what is known as 'Hill's device,' an American invention having the same object. A full description appears in the *Record* for December, 1889, from which we extract the following:—

'It consists, as you see, of two curved pieces of wood, crossed and united by an inch or inch and a half screw, the thread of which protrudes into the curvature. Laying this on its back, legs up-



wards, in a soup-plate, with a sheet of paper underneath, we pour our melted sugar in, until about one inch of each leg is left exposed. The device need not touch the bottom of the plate, if it dips under the surface a half-inch it will do, and for this purpose a piece of cardboard laid across the four legs will sufficiently overcome the buoyancy of the wood until the candy

sets. Thus, when the candy is placed over the frames, the four legs protruding slantingly an inch long, give bee-space at once under its whole area. Moreover, the candy is held by the wood and projecting screw-head from sinking down on to the bees as they undermine it; and when completely eaten away the device still stands to support the quilt, leaving about an inch passage-way over the frames. The device spans five seams of half an inch, and it does not require the exercise of high mathematics to see that, given frames of *nearly an inch*, and inter-spaces of *half an inch*, the four legs of the device (which, by-the-by, should be opened to about three inches wide) will always find a footing. To secure pieces of wood of a sufficient curve apply to some friendly butter-man for his next empty cheese-box, having a diameter of from twelve to sixteen inches, and cut strips off its circumference half an inch by nine inches or so, according to size of soup-plate or other dish used. A good washing will remove much of the "cheesey" smell, and when wet the sticks may be made to assume any necessary curve. If simplicity is a recommendation I do not think you can improve on "St. Beuno's Device" in that point. It took me a short half-hour to make a dozen, and though from the nature of the thing a reserve must be kept on hand for additional cakes of candy, still I would sooner make three dozen of "St. Beuno's" than one of "Hill's" devices.—S. J.'

PRESERVING STORE COMBS.—When combs kept year after year for extracting purposes are done with for the season, it becomes a matter of importance to see that they take no harm from the larvæ of moths, which they certainly will do if put away carelessly. Some bee-keepers regularly fumigate their store combs each year with sulphur fumes, and a good plan it is, but involving trouble, which may be saved by carefully wrapping the boxes of combs each in an old newspaper and setting them one above the other so that the moths cannot enter the package. When any suspicion of disease exists fumigation is to be preferred in case infection lurks about combs used on hives not thoroughly healthy. Partly combed sections are treated in the same way. Combs containing pollen intended for future use are seldom worth anything if kept indoors; the pollen in them either gets so hard as to be worthless, or becomes infected with pollen mites, and is thus quite spoiled for the bees' use.

ROBBING.—Nothing is so effective against this bee-trouble as jealously guarding against a beginning. Watchfulness, keeping entrances narrow, and feeding only at night will generally keep all quiet if hives are left unopened till feeding is done with.

Correspondence.

The Editors do not hold themselves responsible for the opinions expressed by correspondents. No notice will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'THE EDITORS of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements*).

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

BEE-READING FOR WINTER.

[361.] Referring to your article in the *B. B. J.*, 18th September, on 'Bee-reading for Winter,' I would suggest that you give us in your 'Practical Bee-papers for Winter Reading' some instructions and suggestions on mounting different parts of the bee for the microscope. I have taken the *B. J.* in for a good many years now, and I do not think we have ever had any papers of that character. I do not mean just mounting the wings or legs, &c., of the bee, but the dissection and mounting of the internal organs. I think there are many readers possessing microscopes who would be much interested in such articles, and who would take more interest in the microscope if they were to attempt to mount some objects, and had directions for their guidance.

Trusting this suggestion may meet with your approval.—L. BELSHAM, *Heybridge, Maldon, Essex, September 23rd*, 1890.

[If sufficient interest is shown in the direction indicated by our correspondent, we shall be glad to include a paper on the subject suggested.—EDS.]

BEE-KEEPING IN SOUTH AFRICA—AN AMUSING EPISODE.

[362.] As a reader of the *British Bee Journal*, I see so many complaints of and about foul brood that I would ask, Is it not possibly caused by 'chilled brood' through opening the hives? I know this has always a disastrous effect, especially when the hive is in full heat with brood. I am a bee-keeper from my youth, and have never experienced such a thing as foul brood. In fact, I believe your bees are meddled with too much; they do not like their hives opened and the frames as they are now-a-days. I only interfere once a-year with the brood side of my hive, and sometimes only once in eighteen months, excepting when a very good honey season comes. We then clean out old and black combs, and have them renewed.

Would you allow me to suggest a preventive and a cure for your foul brood, and also for the ant pest? First, to rub the whole of the inside of the hives, and the outside of the frames, with

a paraffin-oil rag, and not to interfere with the bees or brood nest for the next twelve months, and to feed the bees and keep them very warm in cold weather. My hives have been kept in this way for the last thirty years, and I never have to complain, but others, through their ceaseless worry of the bees, have all miserably failed.

We have here bees of three different colours, the little black bee, the grey-striped, and the red-striped or soldier-bee. Our bee-enemies are the grey fly, or moth, the small yellow wasp, which destroys a great quantity of bees, and also several birds which prey upon bees. Our hive pests are the bee-crab [probably one of the *chelifers*.—EDS.] and ants, which I am glad to say are not in my hives.

This week I intend to take about one hundred pounds of honey from two of my hives, and the week after I hope to take seventy pounds from another. All my other hives are doing well, with plenty of honey. I have sold about thirty hives to go up the country. We have plenty of bees here in the bee-season. You give from 1*s.* to 5*s.* for a large swarm. I often go bee-hunting, *i.e.*, tracing wild bees to their nests. I think there could be a good market here for English hives and appliances. I have often got orders for bee-goods and requirements. I am now introducing for the summer months sections made of tin, with wood tops only, as the wooden ones break so easily in this hot country. I think they will answer very well.

We have several distinct kinds of honey, the worst being noisdorn honey, which is stronger than hot chillies, but good for consumptive people and for dropsy. The speck-boom honey is said to be good for dysentery. Gona honey is a very strong aperient, quite startling in its effect! Then there is the deane-bessie honey, which candies in the comb a few minutes after being removed from the hive as white as crystal; and, lastly, the quarry honey, which is best of all for fragrance and taste.

I am often very much amused and interested at the many inquiries and questions of bee-keepers, and if there is anything amiss with our bees we just open up the hive and let them go. Swarms often settle in our streets here, while on some farm-places they are a nuisance, through not being understood. Let me narrate an instance of this. An old farmer got his cart out to go to Nachtmall, or 'Sacrament,' when all the Dutch farmers meet in a village church for that religious observance. He hurried his cart out, and when ready, called to his old *vrow* (or wife) to 'get in sharp, or they would be late.' Not long after starting the old lady got uneasy, and at last yelled aloud, and used language which your readers would doubtless consider forcible but *not polite*. Then the old chap began to swear, and he too used language scarcely fit for a Christian just going to Sacrament. Soon after the driver began to holler, and the two old mokes—which usually needed the whip to make them move—started off at a gallop, and then the fun began! The horses kicked and reared, and when they started off didn't they go! Talk about John Gilpin, he was a fool to it! They got to town sharp, and then the friends at meeting came in for their part of the fun. You would have thought the villagers had gone mad! such jumping and skipping about as each came in for his share of attention. The cart-box had been taken possession of by a swarm of bees, and they had filled it with combs and honey, consequently the bees, showing no desire to attend 'meeting,' resented the rude 'carrying off' they were subjected to, and gave every living thing they came across 'fits.' There was lots of thick lips, bunged eyes, and fat legs with bee-stings, but they got over forty-six pounds of honey from the cart-box, and that 'meeting' will be long remembered.

From a wild hive in a rock I have taken not less than two hundred pounds of comb honey in this far-off land. Any information on bees or South African hives which may interest your readers I will be happy to give, and if there should be any 'Useful Hints' on bee-keeping I would be very glad of them. I hope that British bee-keepers will have plenty of sunshine and flowers, and that foul brood will die out altogether, and wish you all success in bee-culture.—J. STERLEY, *Port Elizabeth, South Africa, August 20th*, 1890.

[A very interesting letter, and we hope it will not be the last from the writer to the *B. J.* Whatever else they may make out of bees in South Africa, they can evidently get what our correspondent calls 'fun' out of them. There would be no difficulty in arranging with a manufacturer here for the supply of bee-goods.—EDS.]

DEFRAUDING HONEY SELLERS.

[363.] I noticed in the *B. J.* (p. 448) that some one was complaining of not getting his money for honey sold last year; and fancy I know who the delinquents are, having sold the same company a large parcel of honey, for which I am unable to get payment. It seems to me that the *B. B. J.* should have a *black list*, and publish it from time to time, warning bee-keepers of the quicksands and whirlpools into which unprincipled traders would draw them. The majority of bee-keepers are poor, unsophisticated country people, who have very little contact with commercial centres; therefore are the more in want of a Mentor; and to whom shall we look if not to the trade journal? I consider that bogus companies are the bane of bee-keeping. Even the British Honey Co. proved a loss to bee-keepers, as I know to my cost; but where are the Yorkshire Bee Company, the Simmins Bee Company, and the British and Irish Honey Company? Now the manager of one of the above companies writes, asking me for honey on account of another firm. Twelve months ago last August the same gentleman wrote me, and I sent him nineteen dozen (carriage paid) one-pound glazed sections; that means another 10*l.* loss to me. These recurring losses take off any

little profit there is to bee-keeping, and instead of being the profitable occupation it is too often held up to be by enthusiastic experts in 'Bee-tents,' the profits are very meagre, what with bad seasons, low prices, and bad companies. I trust you will comment on this subject in next issue.—W. WOODLEY, *Newbury, Berks.*

[The matter above referred to is dealt with in a leading article on another page.—EDS.]

UNITING BEES.

[364.] As 'S. J.,' on p. 447 of *B.J.*, expresses a wish that others who have tried the method of uniting he so well describes should send you their experiences, I give mine. Last year it was the middle of October before I got my bees home from the heather. I afterwards found three of the stocks were queenless. I was desirous of joining these to some weak stocks which had not been away with as little disturbance as possible. With this view, I took a tight-fitting dummy, in the middle of which I made an opening about 1 × 6 inches, which I covered with perforated zinc. I substituted this for the ordinary dummy behind one of the weak stocks, and put one of the queenless lots behind, and carefully covered up. On the fourth day I removed the dividing dummy, when the bees united without any appearance of excitement. I at once united the other two queenless lots to other hives by the same method, and with equal success.—W. D., *Lancaster.*

SUPER CLEARERS.

[365.] Mr. Webster in his communication (No. 353) gives a history of super clearers which have come under his notice, and which I have read with much interest. From it I gather that others besides myself have been struck by the same idea, though they carried it out in a more complicated manner, just as I did before I succeeded in reducing the thing to its present simple form. There are in Mr. Webster's communication some passages with which *my* experience does not agree; others, on the contrary, I can fully endorse, and as some parts of the latter are important, I should like to give them further emphasis.

I will begin with the latter, as it is always more agreeable to find yourself in accord with your neighbours than at variance. First of all, then, as regards Mr. Webster's new clearer: I have tried it, and found it a most successful contrivance; in fact, I have no objection to raise against it, except its cost. The price is 3*s.* 6*d.* each, and it is cheap at that. Mr. W. invites all who wish to imitate it; but this will not help the ordinary bee-keeper, as any amateur who would avail himself of Mr. W.'s kind permission, would probably find that the game was not worth the candle, and that he would have done better if he had purchased one ready made. The most important point in Mr. W.'s article is his recommendation to put the clearer on *without any subjugation* of the hive; this is most important, no matter what form of clearer is used. I subject the bees in the surplus neither to the action of smoke nor of carbolic acid, and as this is, to say the least of it, *not usual*, it may perhaps explain the difference between Mr. W.'s experience and mine as regards torn and perforated cappings. But it is altogether saying too much to ascribe damaged cappings to the use of the super clearer described and used by me. First of all, the experience of others, as well as my own, is totally opposed to it; in fact, I have never seen a torn section where the clearer has been used; but even theoretically there is no occasion for apprehension. Bees gorge themselves under the swarming impulse and through fear. The latter is engendered by blowing smoke or carbolic fumes into the hive. This is not necessary where the new method is adopted. First fix the clearer on the roof in the manner already described. Have in readiness the quilts which it is intended to lay over the brood chamber. Have an empty box without lid near you on the ground, and also have a carbolic cloth at hand. Now, with a chisel or strong knife gently loosen the super. Be careful to do as little jarring as possible. Take your time over this part of the operation—the more haste, the less speed. As soon as you feel that the super is loose, seize it with both hands, and by a screwing motion steadily but rapidly lift it off, and place it gently cornerways on the empty box on the ground—don't thump it down. Now take your carbolic cloth and lay it over the frames of the brood chamber; take the quilts up, remove the cloth, the top bars will be clear of bees, and you may lay your quilts on without fear of hurting a bee. Replace the super over the quilts, take the coverings off the super, and replace the roof with clearer in position. In all these operations, if firmly yet carefully and gently done, the bees *in the super* will have been scarcely disturbed, certainly not frightened, and you will find all your cappings intact. There is so little disturbance that I do not even wear a veil during the operation, much to the surprise of some whose supers I have taken off.

There are other points mentioned by Mr. Webster upon which we part company. First, as regards young bees. In one of the older contrivances he speaks of, he says it had the advantage of the exit from the funnel being so placed that the bees could crawl on to the alighting-board. This, so far from being an advantage, is, from his own point of view, a most serious drawback, as such scent as might ascend through the funnel could not fail to cause a commotion at the entrance of the hive—create, in fact, robbing and fighting. Then, again, he says the young bees were lost in the case of one of the contrivances he used. This is not the case with my super clearer. The young bees in practise follow their leaders, and fly in at the entrance. To the theoretical objection I would say—assuming young bees can-

not fly, the exit through the cones being over the alighting-board, they are precipitated upon the latter when they fall off the end of the cone, and then they crawl into the entrance; the latter would be theory—in practice they fly in. The next point is where he says that in his experiments with the cones the bees flew in hundreds round them, the plinths, &c., trying to get in. Nothing of the sort has come under *my* notice, as I always recommend and practice the removal of the supers in from twenty minutes to an hour (according to the state of the weather) after the clearers have been put on. What would happen if the clearers were left on a whole day or longer, I do not know, having never tried it. Then he speaks of a violent disturbance being caused in the apiary through the scent of the honey being in direct communication with the outside air. This, again, is not applicable to the cones recommended by me—no such disturbance has ever been noticed by me or others who have tried my plan; on the contrary, one of the chief features of the new method is that no disturbance whatever is discernable in the apiary, not even in the case of the hives operated upon, and if this disturbance is to be created through the scent of the honey, the reason of the non-existence of the disturbance is not far to seek—it is simply that there is scarcely any such scent. The ventilator opening in the roof is considerably less than the ordinary entrance, and considerably less scent escapes from it, and the two being in so close proximity it would take a clever bee to find out the extra amount of scent generated.

The super being separated from the main body rapidly cools (*this*, I believe, causes the bees to vacate their quarters). Cold honey has considerably less scent than warm honey, and there are no bees at the cones fanning out the hot scented air as there are constantly to be found at the entrance; therefore there is not even a theoretical excuse for the violent disturbance which, in practice, does not exist. One of my bee-keeping friends, with about twenty hives, who, by-the-by, has made his own cones from my pattern, has fixed them permanently on his roofs and intends leaving them there. He has never found a bee entering by them. Though the happy possessor of a large bee-library, I am sorry Mr. Webster's book is not amongst the number, so I shall make haste to procure the work, as it evidently contains something worth reading.

In comparing the new and gentle process with the rough-and-ready method which has up till now universally prevailed, it will strike any thinking person that the chances of torn sections under my system must be infinitely less than under the old method, and yet even under the old method we had not *all* torn sections. Let every bee-keeper, therefore, take courage, and give my clearing process a trial next season. It has the advantage of not being expensive, and in order to enable all interested in our craft to see the contrivance, and, if desired, to get it made in their own locality, I am willing to forward a sample free of charge to any Hon. Sec. of an affiliated County Association who may apply for it. The proof of the pudding, after all, is in the eating—to use a vulgar phrase. Let us hope that the bee-keeper's pudding may be a bigger one next season than it has this; that it may be so is the devoted wish of—P. HARBORDT, *Liverpool.*

FOUL BROOD.

[366.] Seeing in the *B.B.J.* numerous reports of the existence of foul brood in various parts of the country, I think the result of my experience with that plague may be of interest to some readers.

First of all, let me thank our co-editor, Mr. Broughton Carr, for his courteous and prompt reply from Plymouth to my appeal for advice and assistance. Early in June I discovered foul brood in one of my hives, and at once had recourse to feeding with syrup and salicylic solution No. 1 (see *British Bee-keepers' Guide-book*, p. 161—which no bee-keeper should be without); in addition to this, also spraying the frames, bees, brood, and division-boards plentifully, on both sides, with salicylic solution No. 1 twice a-week. After continuing this for three weeks there was a visible decrease in the malady, but it was far from eradicated. I persevered for another three weeks, which brought me to the end of the third week of July; then, finding foul brood still present, I began to feel disheartened.

I have often read in *B.B.J.* the best plan is to destroy all stocks found to be affected *at once*, and so prevent it spreading; this I was very loth to do, as mine was a very strong stock. I continued to spray the bees with solution No. 1, and at the end of another week there was a marked improvement, so I decided to transfer all the bees to a clean hive, with frames filled with foundation well syringed with solution; to these I added three frames of stores from other stocks. This done, I fed rapidly with syrup and solution. All the affected frames containing brood, honey, and pollen, I destroyed.

On examining the hive at the end of a week I found the queen had commenced to lay on three frames. This being so I sprayed only the division-boards, and not the frames. All went well, and on August 28th I saw here and there one or two cells of dead larvæ, in all about twenty cells. I started spraying at once, and have seen no increase of the dead larvæ since. The hive is at this date (September 20th), although another foul-broody stock was united to it just about August 28th, entirely free from foul brood, and contains a large patch of healthy sealed brood on each side of four frames, besides a goodly show of grubs. There is one thing I can hardly understand so late in the season—I discovered a quantity of drones; these came from the united hive, but why they have not been slaughtered I am at a loss to conceive.

Shortly after the discovery of foul brood, early in June, I was disgusted to find a second hive attacked. I at once adopted the same curative measures as I practised in the first case, and I am glad to say with the same result as regards foul brood; but, unfortunately, in some way the queen got seriously injured (at least I can only suppose so), for one day I found her on the floor of the hive lying on her side, with a number of bees in a great state of excitement around her.

I picked her up, and laying her in the palm of my hand for some time, I found she laid five eggs in about five minutes, but this while she lay on her side. I held her for some time, and after awhile she somewhat recovered; then I carefully placed her on the comb in the hive, but two days after I found her on the alighting-board dead, with nearly a dozen bees round her. I at once added to this hive a frame with eggs, and one of brood and pollen, from other stocks; ten days after this I discovered a queen's cell, a few drones, and many drone-cells capped over. A little more than a week later the drones were all hatched out, or nearly so, and the queen-cell had disappeared, but, alas! no queen in the hive. As this was the latter part of August I concluded to unite these with the first hive attacked; this I have done, and they are doing well now. At first I had a little trouble: some of the bees united would return to the old spot (I had left the old hive on its stand). I returned them three times, and removed their old hive right away, and now they remain in their new home. I hope, before the cold weather comes, to have built up the stock fairly strong.

If you, Messrs. Editors, or any of your readers will give me any hints or suggestions which may occur to you, they will be gratefully received by me. I am very desirous of discovering an infallible cure for this pest of bee-keepers, and I indulge the hope that some one or more of your readers who have suffered may have tried the same remedies, and with the same or greater success. If a cure has not been effected, I am inclined to think it may arise from want of *continual application* of such remedies; *great vigilance* and *perseverance*, I think, will do wonders. My case was a bad one, as you in your letter affirmed, and yet I have cured it completely.

This has not been a good honey season in these parts, but I have done fairly well. I have had twice as much honey as I took last season, and that has given me fresh heart to start the new year with.—PROPOLIS, *Woodford, September 22nd*, 1890.

EXPERIENCES, SUGGESTIONS, ETC.

[367.] Having kept my promise of not taking up any of your valuable space for a long time, I may now be pardoned for sending you a few jottings. First, then—

The Season.—Yes, of course, some one will say, 'I thought we had heard the last of the season.' But, you know, the *weather* to bee-keeper and farmers is *always* in season. Well, it was about the same in these parts as in others—splendid in May. Bees working tremendously hard, scrambling head over heels as though they had some forecast of disappointing June. I started with nine frame hives and one skep, and have taken from them 50 lbs. prime early extracted honey; about fifty 1-lb. sections, fairly filled; and 40 lbs. of middle and late honey—making a total of 140 lbs. net; rather a good return when put by the side of *nil*. My best hive last year swarmed after giving 115 lbs. (the only natural swarm I ever had). You will see I use the words early, middle, and late honey, because, with a little care in labelling supers, &c., when on the hives, it is quite easy to get it graded under these heads, which, in my opinion, is far before storing it in one common tank labelled *mixed*. Let me say here, as a hint to dilatory bee-keepers, that my nine hives have already been well fed, neatly and warmly packed in their winter quarters, while all appliances used during the season are in a fair way for being served the same—the whole being done whilst some are thinking about it. In bee-keeping 'don't put off for to-morrow what ought to be done to-day.'

'*Bee-Reading for Winter.*'—This is a capital idea, especially for those who have no carpentering to do in the quiet winter evenings. I had thought some time ago of a somewhat similar thing. My idea was that those of us who feel indebted to the *B.J.* for much assistance received, should send in to its Editor a small sum of money, asking him to put it away safely labelled 'Prize Essay Fund.' The next step would be to select subjects that want a little *airing*. Then invite short, pointed, and practical papers or essays on one subject at a time, offering as a stimulus a first, second, and third prize out of the money our Editor has got, or, rather, will get: not so much for the value of the prize, as for the assurance the writers will have of having *helped others*.

Draught.—Some bee-keepers think that cold draughts will destroy a queen's egg-laying powers, and cause dysentery among the bees. Listen: I prepared a frame hive last year about this time in the usual way, but had the sliding floor-board drawn out about three inches. Over this space was placed a piece of wire gauze, and, with an entrance about three inches wide, the hive was left undisturbed for five months, when the bees, much reduced in numbers, but quite healthy, were clustering in the front part of the hive. The frames ranged from front to back, so that the draught had a free passage right through the hive. About the 1st of March I removed the wire gauze, put back the floor-board, placed on top of frames a slab of soft candy, and made all snug and warm. I rather blamed myself for treating my pet hive in this cold fashion all winter: but hope revived as I found the queen all right, and none the worse for the airing. Perhaps you may be as surprised as I was myself to know that this queen surpassed all my others this year. This stock gave

me 32 lbs. super honey, gathered nearly all in May. How the bees lived through the winter is to no one a greater wonder than to myself.—J. W. BLANKLEY, *Denton.*

[It is well known that bees have wintered quite safely under the conditions stated; they want keeping dry, besides it causes loss of bees in consequence of those on outside of the cluster suffering a too great diminution of vitality through cold. Once the hive is made warm in early spring a good queen will pull up the strength of the colony rapidly.

Referring to our correspondent's suggestion *re* 'Bee-reading for Winter.' We thank him for his good intentions, but if the matter is left in our hands we will endeavour to give readers a series of reliable papers without troubling them in the way of subscribing to form a 'Prize Essay Fund.'—EDS.]

DESTROYING WASPS.

[368.] Your correspondent Mr. H. O. Smith, of South Lincolnshire, has done good service by showing how our enemies may be destroyed; but my master, I think, does it more simply, *i.e.*, by marking the nests in the daytime by a stick or stone, pouring in the turpentine when all are at home, and covering with a sod of grass. He has also heard of catching them (as also hornets) with twigs smothered with bird-lime. As to American balsam as a bee-plant, I know a spot where hundreds have grown for two seasons, and neither I nor my sisters will ever visit them, but in my frequent flights to better pastures I have seen them stormed incessantly by my neighbours the humble-bees, but not by one of my family. Finally, we (I speak for all my community) are very sorry that the honey we have been obliged to gather this season has much of it been so dark. We would have avoided the limes and the blackberries had we but been able to find other sources of nectar. We promise that, given a good season next year, we will try and do better.—APIS.

EXCLUDER ZINC AND DRIVEN BEES.

[369.] Being from home, and not seeing your reply to my query on p. 429 (No. 203), I hasten to write you again, and explain the case more clearly. My object in driving was to transfer to a frame hive, and wishing to use the skep they were driven from as a super, and also that the brood in it might be hatched out, after the driving I placed the skep from which the bees had been driven above the bar-frames with a sheet of excluder zinc between. I then threw the driven bees on to a cloth in front of the frame hive, and so got them in. My idea was, some of the bees would go aloft and hatch out the brood, and the remainder stay below with queen and draw out the foundation in the frames. However, they all went aloft in each case and left the queen to die of cold; at least, so I presume. What surprised me was that they should desert the queen in such a way. I did not follow my successful method, as frames of hatched-up comb are not so even and straight as when foundation is used.—THOS. GIBLETT, *Chipping Norton, Oxon.*

[The case, as above stated, is now quite clear. We have known many instances in which the same thing has been tried with the same unfortunate result, and trust that readers will be warned thereby.—EDS.]

THE BEE-SEASON AT ENNERDALE, CUMBERLAND.

[370.] The bee-season this year opened very poor, and remained so during 'clover time,' and almost all the ling season. In the spring the majority of stocks were strong, but owing to the unpropitious weather very few 'swarms' were noticed. In most cases the bees were fed up to the clover season, and this enabled them to be in grand form for it; had the weather been good doubtless some very heavy supers would have resulted, but unfortunately scarcely a pound, in some cases, was the reward, as the rainy weather completely spoiled everything. The ling (heather) prospects were very assuring, but as time elapsed it rained day by day, and we naturally got disheartened. The Ennerdale Bee Association opened their ground on Ennerdale Fells for the ling season on August 2nd for six weeks, and about 200 hives were readily deposited thereon, some being sent from a long distance. The rainy weather, however, severely kept back the ling from yielding anything, inasmuch as the flower was robbed of its sweetness, and the results in 'honey harvests' have been consequently very much less in all cases in comparison with former years. It is to be hoped, however, that future seasons will make up for the past one, and that bee-owners will have better seasons in store. It is likely enough that several hives will require attention in feeding during the next fortnight.—HEATHER, *September 19th*, 1889.

[We were not aware than any B. K. Association had a 'bee-ground' for the accommodation of hives at the heather as mentioned above. It is a good idea, and might with advantage be extended, as, for the outlay of a small sum, space might be rented, and a shepherd engaged to cast a watchful eye over the bees while on the 'ground.'—EDS.]

BEES ON THE YORKSHIRE MOORS.

[371.] I was on the moors on September 18th for an inspection. I have three hive there, and the last fifteen days' sunshine will give me a yield of 100 lbs. of honey; and here has been the secret of my success. All through the wet June and July I kept up them breeding by feeding, although it went sadly against the grain. Yet my idea took shape that if I missed the clover I should try and 'hit it' at the heather, and you have the result, which means a covering of all expenses and a trifle to the good.—AMATEUR, *Leeds.*

A HISTORY OF A ONE-STOCK APIARY.

[372.] In the summer of 1887, passing one day by a neighbour's garden, I asked the gardener whether he had taken off any sections yet. His reply was, 'No, sir; we've a jist put on the boxes a day or two agon'.' This was about the 20th July. I told him he might just as well take them off again, as there would be no honey stored. The following spring I offered to see to the bees myself, and the young lady to whom they belonged gladly accepted my offer. This was the very bad season of 1888, and I had the satisfaction of taking off sixteen filled sections and two or three partly filled ones. The next season I put on a twenty one 1-lb. crate first, and in about twelve days lifted that and put a twenty-four 2-lb. crate underneath. At the end of the season I took off the twenty-one 1-lb. sections, all well filled, and eighteen 2-lb. ones, well filled, with the other six nearly so. This year has been nearly as bad as 1888, until the autumn, and yet I have just taken off seventeen well-filled pound sections, and left abundance of store for the winter.

Now, I should say that this hive has never had an ounce of feeding of any sort since the time they were put into it in 1886. They are in a bar-framed hive, with larger-sized frames than 'Standard' frames. I expect they laid in such a large store in 1887 that it has lasted them ever since.

I have taken off about thirty-four pounds from my best hive this year, and from seven to twenty-seven pounds each from twelve others; but many of my neighbours have not taken any surplus whatever.

How many lots of driven bees would you say is the best number to put together? I have put as many as six and as few as two, and found each answer very well.—T. Hosegood, *West Somerset.*

[It depends on the size of the 'lote' when deciding how many will winter well. Two good-sized lots or four small ones will do very well.—Eds.]

BEES AND RED CLOVER.

[373.] I have often seen reference made in the *B. J.*, as a doubtful matter, whether bees visit red clover or not. Now, for the last three weeks or so there has been a field of red clover in full bloom close to my hives, and my bees have been on it in thousands, along with crowds of humble-bees. I wanted to make sure they were getting honey from it, and so captured a few bees, and sacrificed them in the cause of science, to find in every case the honey-sac more or less distended with nectar. The clover was a second crop, and the heads were not nearly so large as those of the first crop. With regard to bees and field-beans, I noticed that they never went to the mouth of the flower, but always to the base of it. On examining more closely, I discovered that nearly every flower had a minute curved hole eaten through it just where the honey would be expected, through which the bee pushed its proboscis in a twinkling. I never saw a bee gnawing any holes, but there were lots of a peculiar reddish fly very busy about the bean-flowers too. I never saw *him* at it either, but I am inclined to think he had something to do with the little holes, as he had a very sharp-looking proboscis, which looked as if it might be used for a job of that sort, unless the bees could manage to bore the holes for themselves; but I never could catch any at it, although I looked carefully very frequently. I may state as to the honey season here, that from fifteen hives I got six sections and about twenty pounds extracted; not a big lot, is it? Five swarms have enough to winter on, remainder will want about half their stores in syrup. I have three lots Carniolans, and, as a rule, I never use a smoker to them, as it is unnecessary: they seem as harmless as flies. They swarmed once each. As to honey-getting I cannot say, as I have only had them this season. They seem no worse off than the others for stores, however.—Northampton.

Queries and Replies.

[233.] *Foundation and Foul Brood.*—Do you consider that there is any danger, as suggested by a correspondent a short time ago, of foul brood being spread by the use of bought foundation?—J. W. N.

Reply.—We should think the long process of heating the crude wax undergoes before it is transformed into foundation is quite enough to remove any taint of disease it might have.

[234.] *A Series of Disasters.*—I had a stock of bees on twelve frames that swarmed in the end of May. The swarm was hived on ten frames. Since that time both stock and swarm have been decreasing in bees, more especially the parent hive, which dwindled right away about two weeks ago. The swarm I supplemented with two lots of driven bees as it had no queen, and a few eggs were laid afterwards, but to-day I found three queen-cells sealed over, so I conclude they have no queen. 1. How should I proceed? I am going to drive some bees for myself and unite, must I introduce one of these lots and take away queen-cells? 2. Would the queens hatched from these cells mate next year?—E. Holmes, *Langport.*

Reply.—You are either singularly unfortunate or there must be something radically wrong with the method followed when every phase of your management has ended in failure. It will be advisable for you to read one of the short treatises on bee-management, which may be had for a trifling sum, in order to avoid future disasters. We say this because your

query as to queens hatching this season and 'mating *next* year,' shows that you have still to master some of the elementary principles of bee-keeping. Briefly put, your stock was a good one, as is proved by its swarming in May; we hear of no second swarm, yet the parent hive dwindled away and died. The swarm became queenless, two lots of driven bees were added, and it is queenless still! How all these disasters have been brought about it is impossible for us to say. Reply to your queries—1. Add one of the driven lots of bees (with queen) to the swarm, and do it carefully for fear of queen being damaged. 2. No; queens if not mated the year in which they hatch are worthless.

[235.] *Foul Brood.*—I send you by this post a piece of comb, also the queen of the stock from which it was taken. 1. Will you kindly say if it is 'foul brood,' as I believe the disease, whatever it is, originated in this hive? 2. Can you give me your opinion, after an examination of the queen, whether or not she was the cause of it? I never had a case of 'foul brood' before, and have kept bees for thirty years, and I do not know of the disease being in the neighbourhood. The piece of comb is a bit of the worst in the two hives affected. The hive it was taken from was an artificial swarm made from the adjoining stock, and the enclosed queen placed at the head of it for the purpose of stocking an observatory hive. There was then no appearance of any disease. There are three other hives in another part of the garden that do not appear to be affected.—AN OLD SUBSCRIBER.

REPLY.—The comb sent is affected with foul brood of a bad type, and we also observe that the queen is apparently a pure Ligurian. These two circumstances combine to make us strongly advise the destruction of the frames, combs, &c., by burning the lot. Foul brood in any form is bad enough, but when the bees attacked are Ligurians it becomes doubly objectionable and, according to our experience, difficult to cure.

[236.] *Uniting Driven Bees.*—On examining one of my bar-frame hives to-day I find it queenless. I have a stock in a skep standing six hives away. How can I best unite the bees of this to the bar-frame hive?—S. E. SCARTH, *Wakefield.*

REPLY.—The two hives will require to be brought close together, moving each a foot or so nearer every day on which the bees are flying. When they are but a couple of feet apart, drive the bees of the skep, and if you have a spare frame hive, set it on a stand midway between where the two stocks stood. Lift the stock in frame hive away a few feet, and after giving the bees in it a few puffs of smoke to quiet them, lift out the frames singly, and shake the bees on to a good-sized board fixed up in front of the empty frame hive, placing the frame in the latter after the bees are removed from it. When about half the frames have been treated in this way, throw the driven bees on the top of those on the board, and when the frames have been cleared of bees, replace the quilts, and all will run in together without fighting.

[237.] *Honeyless Hives returned from Heather.*—I have just got my bees back from the heather, and find that one of my stocks which went away strong has come back woefully weak and without a particle of honey. I am feeding strongly, but the bees are not working, only pottering about the hive. I enclose one, and shall be glad if you will tell me what is the matter. Is it foul brood or dysentery?—TOM R. DODD, *Lemington-on-Tyne.*

REPLY.—Probably the stock has been robbed at the heather, or has lost its queen. Examine and see if the latter be the case. The dead bee sent is no help to us in judging whether the hive has foul brood or not. We must have a piece of comb with brood in it before forming an opinion.

[238.] *The Distance at which Queens will Mate.*—I had a swarm on May 25th from a hive of native bees, and now I see nearly all the young bees are marked with two yellow bands. Do you think the young queen has mated with a yellow drone? I have never kept any but English bees, and I do not believe there have been any kept nearer than six miles from where I live.—J. H. W.

REPLY.—The queen has, without doubt, mated with a yellow drone. It is more than probable that foreign bees are kept somewhere nearer than six miles, though some hold the opinion that mating will take place even when the respective hives are that far apart. Personally we doubt it, and will be glad if you could verify the fact.

FORMIC ACID AND ITS USE.

BY ROBERT SPROULE.

[The following fuller and more explicit directions regarding formic acid, from the pen of Mr. Sproule, the inventor of the remedy, appear in *Gleanings*, just received, and will help to clear up several points on which some uncertainty exists.—EDS.]

My first proceeding was to mix two teaspoonfuls of formic acid in a quart of syrup; the syrup thus acidulated was dropped on or into all brood cells, whether diseased or healthy, twice a week, until the middle of June, when honey-storing begins in this district. An undesirable result of this rough-and-ready treatment was that the smaller larvæ were floated out of the cells, and the loss in this way was very considerable; but every hive became healthy. To make matters sure I fed all my bees in the autumn with acidulated syrup, the proportion of acid to each quart of syrup being doubled, or four teaspoonfuls to the quart.

Although the acid flavour was very strong the bees took it readily, and in the warm evenings when the bees were hard at work fanning at the hive entrances the smell of the acid was very perceptible; and so far I can safely say an apiary was never cleared of foul brood, without destroying a bee, frame or quilt, in so short a time as in this case. I may add that a friend who keeps a dozen frame hives eradicated foul brood by the same treatment.

In regard to the trouble of using formic acid as I have described, and also the resulting loss of brood, it occurred to me to try it by pouring it into one side of a clean empty comb, which was then placed in the hive as far as possible from the entrance, and this plan of using it has proved so successful that I question whether anything better can be devised. When used in this way, with a strong stock and warm weather, the evaporation of the acid is so rapid that the fumes, on removing the quilt, 'take one's breath away' for the moment; but the bees don't seem to mind this in the least, as they cluster on and store honey in the comb containing the acid. The first thing which will strike the experienced bee-keeper on opening a hive in this condition is that the offensive odour peculiar to foul brood has passed off; and if he examines the once foul-broody combs he will find that the bees have cleared out all the putrid matter, and that all the brood is in a condition of perfect health. A second application of the acid in this way will in most cases suffice to get a hive clear of foul brood.

As a remedy for foul brood I do not think anything in the British Pharmacopœia is comparable to formic acid; and those who have vainly tried salicylic acid will do well to give it a trial. Curious to say, although the latter has been pronounced a failure by every intelligent bee-keeper who has tried it, it is still mentioned as a remedy in some of the bee-books published in England. For myself, judging from its high evaporating point and comparative insolubility, I do not and never did believe it possible to cure foul brood with it. On the other hand, formic acid evaporates rapidly at ordinary atmospheric temperatures, and so it is brought into the closest possible contact with every part of the interior of the hive and every part of every cell, grub, and bee it contains. Having no offensive odour it can be used while honey is being stored, without the slightest fear of tainting it; and, although last, not least, it is not expensive, a bottle containing one pound costing about two shillings and ninepence.

The formic acid I use is known chemically as a ten per cent. solution of anhydrous formic acid, and its specific gravity is 1·06. Bee-keepers should be careful about this, because absolute formic acid is not only expensive, but it is very dangerous to handle, the least drop of it causing very painful ulcerous sores. In fact, any solution stronger than that given above is undesirable, as it has a solvent action on the beeswax in the combs, although, strange to say, it does not affect paraffin wax.

Foul brood is rapidly becoming a serious pest, and if its progress is not checked it will certainly put an end to bee-keeping in these countries. This is, in my opinion, largely the fault of the bee-keepers themselves, as when it makes its appearance, instead of trying for a remedy, they regard it with a sort of Mohammedan fatalism, as something against which there is no use in striving.

In conclusion, I wish to point out that to make an experiment on the lines I have given will cost very little money and not more than five minutes' time, and if the necessary conditions (a strong hive and warm weather) are present I guarantee its complete success.

Echoes from the Hives.

Instow, King's Road, Kingston-on-Thames, September 21, 1890.—The honey season has not been quite a failure with me, having taken thirty-four pounds from two hives—nineteen pounds in sections and fifteen pounds extracted. On August 18th I took bees to the heather, about five or six miles distant, where there seemed to be prospects of some honey being gathered; but, when, on the morning of the 17th inst. I paid them a visit, I found that they had not stored a drop of honey in the supers, the heather being all dried up by the sun. I hope for a *better* season next year.—Fred Hodgson.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

F. J. P. (St. Albans.)—The hive from which comb was sent is foul-broody. Combs also are very old, and, with healthy colonies in such close proximity, we should not risk infection by attempting a cure. We therefore advise burning combs, frames, and bees. Do not again use the hive before thoroughly disinfecting it.

Derbyshire Novice.—The person advertising is responsible for the article being as described. To make the statement you desire would be libellous.

Alpha.—Having yourself worked a bee-house constructed as sketch sent, you are the best judge of its merits, but we must confess the idea of crowding fifteen hives in a space twelve feet long by two feet wide is much against our notion of what is best. The hives on the roof must be very awkwardly placed for

supering purposes. The method of fixing the cone over the feed-hole in quilt or cover to the sections will, of course, answer for four bee-way sections only; with two bee-way ones the bees could not escape from the side rows at all.

J. H. (London).—Your later note renders matters in a much clearer light, and if all combs containing dead brood are removed, and a thorough disinfecting process carried out as before, your latest attempt at curing the disease may be as successful as the first. The comb sent had the odour of foul brood, but not so bad as usual.

HARRY J. RAVEN.—The method of 'uniting,' and of queen 'introduction,' detailed by you is well known, and is practised by many who have never heard of the gentleman you name as the discoverer. It is also described, practically, if not in identical terms, in several bee-books, and it would therefore be more misleading than instructive to print your letter as written.

JAMES HILL (Stanyround).—*Perforated Zinc for Uniting Bees.*—No doubt many other persons besides the gentleman named have used perforated zinc for uniting bees, and it would be difficult to tell who first adopted it for the purpose. None the less credit, however, is due to 'S. J.' for bringing his method of 'uniting' bees before bee-keepers, and we are quite sure he had, as stated, never heard of its having been used for that purpose.

AMATEUR (Leeds).—*Extracting Heather Honey.*—Heather honey cannot be extracted in the ordinary sense of the term—*i.e.*, by centrifugal motion. It requires some such machine as the Raitt press, one in which the principle is that of pressure. It is a troublesome job to remove heather honey from brood combs unless they are very free from pollen.

T. R. BEAVIS (Crouch End).—The queen sent is a virgin. It is for you to say if the bees are sufficiently numerous to be worth requeening. If not, we should unite them to the swarm.

BEE-KEEPERS POISONED BY CANNED LOBSTER.—Berlin, September 21.—Forty participants at the Bee-keepers' Congress, being held at Fulda, have been stricken with typhoid fever. Four of the patients have died. The doctors stated the fever was brought on by eating canned American lobster, which was served at the banquet given to the delegates to the Congress.

*** *We are again compelled to hold over several queries, &c., till next week.*

NOTICE.—We would ask our correspondents to take notice of the removal of our office, and request them in future to address all communications relating to the literary department, &c., to 'The Editors of the "BRITISH BEE JOURNAL," 17 *King William Street, Strand, London, W.C.*'

THE
British Bee Journal,
BEE-KEEPERS' RECORD AND ADVISER.

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Editorial, Notices, &c.

USEFUL HINTS.

Weather.—Though reports reach us of heavy rain and cold winds in the north for several days lately, sufficient to bring to an end the heather season there, we have still in the south no change in the long spell of fine weather experienced for many weeks past, and in consequence of these favourable conditions, it may be fairly assumed that a very large amount of feeding will, in the southern and midland districts, have been got through satisfactorily; but cold nights will be on us very shortly, and it must be borne in mind that the difficulties of getting bees to take food in quantity will begin too, therefore every day now allowed to pass, will be but adding trouble later on. The giving of warm food as fast as the bees will take it, until the required quantity is stored, should now be the most important task every bee-keeper has on hand; odd jobs of straightening up and making things tidy may be held over, but feeding cannot wait. What a comment on the past season of failure to read of a yield of thirteen hundredweight of surplus honey this year from twenty-five hives, while leaving brood chamber untouched! Yet this return has been secured at Bury St. Edmunds, as will be seen on reference to page 485 of our present issue.

Weather advantages have this year been all in favour of the south, the autumn in the north having apparently failed to redeem the bad time experienced earlier on. A London paper to-day says:—'To farmers in the south of England, who have enjoyed six weeks of magnificent weather, reports from Lancashire and Yorkshire to the effect that there is still a good deal of corn out in the fields, and some even uncut, must be astonishing.' Personally, when we remember what we have seen in the fields of Hertfordshire, where the cereal crops have been gathered in long ago, and the sight of the Kentish fruit-fields with their acres of strawberries ploughed between and trimmed up for next year's crops, it *is* astonishing to read of the condition of things down in the north.

Robbing.—We thought it would have been unnecessary to say anything more on this ever-recurring subject; but according to reports it has apparently been rather troublesome this autumn to a few of our readers, mainly, as we think, through their not understanding the necessity for watchfulness at the outset. When a bee-keeper tells of 'having had immense trouble in opening hives lately, owing to bees from the other stocks trying to get at the contents of the combs being examined,' and further on says, 'The little rascals come about me in hundreds directly I open a hive,' we may be sure that he is not a very experienced hand at the business. For the especial benefit of such readers, we may, therefore, say that too much care cannot be taken in autumn when feeding is going on. A beginner cannot understand why so much care is taken by an old hand in keeping down the least approach to robbing when dealing with an operation like feeding or examining a large number of colonies of bees; he goes about his work in a way aptly illustrated by a remark made to ourselves by an onlooker some years ago. 'You go about your bees,' said he, 'as if afraid to wake the baby.' That is just the idea we would convey if the 'baby' be left out, and the marauding spirit of the bee in autumn feeding-time substituted. By keeping the entrances not over an inch in width robber-bees have less encouragement to continue worrying and wearying out the defenders of a weak stock, until, as often happens, all resistance is taken out of them. If a hive is opened for inspection, and during the operation the least sign of a general attack is observed, it must be closed at once, and the examination deferred. In extreme cases, where the mischief

has gone on for some time unchecked, the opening of a hive will be the signal for an onslaught; and where examinations are imperative, every hive should be closed until the inspection is over. Occasionally it happens that one particular stock becomes so addicted to robbing that its scouts seem always on the look-out for plunder, and no sooner is a hive opened than they are out in scores. There is no readier way of finding this out than dusting a little flour on the robbers as they leave with their booty, and watching them fly home. If trouble is brought home to any one colony, its bees should always be confined to their hive while operations are proceeding. Carbolic acid is sometimes most useful in warding off an attack if smeared about the entrance, or a carbolised cloth fastened above it will drive the robbers off. But, as already said, nothing is so effective as watchfulness.

Flour as a Bee-Pacifier.—The axiom, 'There is nothing new under the sun,' seems particularly true in bee-matters. A correspondent writes to the *B. J.*, and makes known a plan, which he reasonably enough supposes has never before been heard of, detailing how bees may be induced to unite peaceably by dusting them well with flour. Immediately we are told by a second correspondent that he has used flour successfully for that purpose for twenty years past; and a third learns of an old cottager being quite up to the flour 'dodge' by giving him an opportunity of proving its efficacy. What concerns bee-keepers most, however, is the knowledge that bees can be pacified when disposed to quarrel while 'uniting;' and reports have followed proving that the new (?) quieting agent fulfils its purpose most effectively in this respect. No matter, therefore, who was the first to make the discovery. The thanks of bee-keepers are due to the gentleman who, on page 462, of *B. J.* made it public.

Naphthalined Honey.—This has been another source of anxiety for bee-keepers, because any curative agent used while bees are gathering nectar must be very objectionable if it conveys to the honey either its odour or any disagreeable flavour it may possess. In response to our request on page 463, a sample of honey from a naphthalined hive has been sent to us, and taking it as a test, we have no hesitation in saying that naphthaline may be used without fear during the coming season.

BRITISH BEE-KEEPERS' ASSOCIATION.

The following is a list of the successful candidates for third-class experts' certificates, who have passed during the year 1890:—

Hill, Herbert, Ambaston, near Derby.
Toon, George, Newhall, near Burton-on-Trent.
Wootten, Charles, Draycott.
Oultram, John, Kingsley, Frodsham, Cheshire.
Leatherbarrow, W., Southport, Lancs.
Hale, John, Croston, Preston, Lancs.
Hamer, Abraham, Knighton, Radnor.
Clarke, Charles, Overby, Wellington, Salop.
Powell, Martin, 16 Bell Lane, Ludlow, Salop.
Loveday, William, Romford, Essex.
Tunbridge, James, Broomfield, Chelmsford, Essex.
Jenkins, W. H., Sketty, Glamorganshire.
Jeanes, H., Cadoxton, Neath.
White, John B., Eastwood, Notts.
Cheesman, J., Kirton Holme, Boston, Lincolnshire.
Hancox, S., Wythiam Mill, Oxford.
Slatter, —, South Coombe, Woodstock, Oxford.
Seymour, —, Henley-on-Thames, Oxford.
Griffin, W., Bradley, Wotton-under-Edge, Gloucestershire.
Hulance, W., Alderley, Wotton-under-Edge, Gloucestershire.

THE SCIENCE OF BEE-KEEPING.

Heat: Its Economy and Dispensation.

Although heat is one of the most important factors in achieving success in bee-keeping, and one with which we are constantly confronted in all our manipulations in the apiary, yet, if we look down the index of our best bee-books, I think we shall find heat as a subject entirely omitted. Formerly, with bees in skeps and wild bees in the hollows of trees, a knowledge of this subject might not have been required; but for several years past I have been brought face to face with facts which have convinced me that it would be one of the most useful chapters for reference for the bee-keeper of to-day.

The study of the various ways in which different animals keep their young warm is very interesting, but the knowledge of the manner in which bees do so is indispensable to the modern bee-keeper.

If we observe the fowl hatching her eggs or keeping her chickens warm we see that she has no choice in the matter; she can only do so by sitting over them. This applies also to birds, and I may draw attention to the fact that while the nests of large birds are almost flat, those of smaller ones have high sides to assist the parent in maintaining the uniform heat required, and preventing its too rapid escape, while in the case of some of the smallest birds the nest is made to enclose the parents as well as the eggs; but beyond this, in some varieties, several of the hen-birds hatch and keep their young warm in one and the same nest, thus generating and dis-

pensing the necessary heat to their young with an efficiency they could not attain to singly.

Some fur animals also dispense warmth to their young for a few days after birth by lying at their side, such as the pig, the dog, and the cat; and these parents are specially provided with two rows of teats, that the young may take the food with facility in their warm and cosy position at the side of the mother.

With very diminutive animals, again, nature provides means for the same end. We find in the field-mouse (a small animal only four inches long), that she has six teats fully developed; four of these are adjacent to the hind legs—two between and two just in front; the remaining two teats are quite near the fore legs, no less than one and a half inches away from the others, leaving nearly the whole length of the under part of the body between the legs for the young to nestle in. Thus this diminutive animal, clad with an extra thick coat of fur, can completely encircle her tiny charge in her warm embrace while dispensing the necessary warmth and food with the greatest economy of heat. On the other hand, we find for such offspring as do not require maternal warmth after birth, the parent is devoid of two rows of teats, and has only the udder with two or four teats. The goat, the horse, and the cow are included in this class.

We see in this way how varied are the means adopted by different animals for the all-important purpose of dispensing the warmth so essential to their young; and pursuing the same line of thought we are led to inquire what means are left for insects which, from their extreme diminutiveness, bear no comparison even to the smallest parents we have been considering.

The knowledge of the manner in which bees maintain warmth to their brood is, as already observed, of extreme importance to the modern bee-keeper. The method by which they attain the desired end is, however, apart from that, very interesting, and actually unknown to many who have otherwise a wide experience in the management of bees. To economise and dispense warmth to their brood, bees are obliged to place themselves, as far as possible *under it*; this applies also to wasps, and to some varieties of ants, and is exactly the reverse of what birds are obliged to do. In other words, these insects seem equally aware with ourselves of the rule that 'heat ascends,' and are apparently as much sensitive to the existence of that law as human beings.

If an ant-hill be disturbed, accidentally or otherwise, the ants, as is well known, retire to the bottom of their nest, after closing any apertures in the top made during such disturbance, through which heat might too readily escape during the coolness of the night; and if you disturb the top of such a nest during cold weather or after sunset, a moment or so elapses before the ants have time to ascend to the surface.

Red ants of a very diminutive variety seem unable of themselves to keep up and dispense sufficient heat to their brood, and I have repeatedly observed them occupying part of the space between the shutter and the glass of my Stewarton hives, when I used such, the tiny colonies utilising the heat of the bees which were on the inner side of the glass, to keep their brood warm. For that purpose, also, they are known to select such places as south walls and glass-houses.

Bees.—I was first forcibly impressed by the manner in which bees dispense warmth to their brood through observing a colony of my Italian bees, which had established itself in a thorn-bush near my apiary, unknown to me, in July, 1888. My attention was drawn to them about the third week in August, and I hived the bees on their own combs in nine standard frames about the middle of September. Previous to hiving I had examined them closely on several occasions, by night as well as by day; they had a very large nest of snow-white combs, with plenty of sealed and unsealed honey. The bees were clustered under the combs, much as if they were at work lengthening them; only a bee here and there, say every inch or so, was visible on the sides of the combs. I inferred therefrom that the bees had no brood, but I could not reconcile this with the fact that they were bringing in large quantities of pollen. Upon further examination I observed that they had brood in five combs; there was a patch at least as large as the hand in each of the three centre combs, while the space between the combs was perfectly open above as well as at the sides. I therefore could come to no other conclusion but that these bees kept their brood warm by placing themselves *under* it. The cluster rose a little around the sides of the brood, much in the shape of the horns of a crescent, with the concave side upwards.

This incident made me recollect my first years in bee-keeping, when, upon turning different skeps upside down, I had frequently observed the cluster of bees so thick under the brood that the bottom of the comb became quite invisible. I had afterwards repeatedly noticed, during several years, the descent of the bee-cluster under the brood in my tiering hives with glass windows in each storey.

On several occasions, while removing combs of sealed honey, I observed that the lower sides of the brood combs only contained a few home-toilers, the bulk of the colony then at home being clustered just under the brood. But I had never been directly impressed with the fact that the bees were obliged to place themselves so to supply warmth to their brood before observing the hiveless colony of bees in the thorn-bush referred to above.

It is, no doubt, for this reason also that, as bees prefer to cluster against the combs themselves, in frame hives they do not always attach the lower part of combs either to the side or bottom bar of deep frames, but leave a narrow space between. With deep frames the cluster extends further up the sides than in shallow or Carr frames, in which latter bees build their

combs right over the bottom bar and cluster under it; yet the upper ends of the cluster are as near the quilt before supering in the one case as in the other. The quantity of brood that bees can maintain thus above their cluster in early summer is such that, while it may not reach the top bar in Standard frames, it does so in Carr frames, and the brood requires the cluster to extend itself further up its sides when there is a vacant space above than when there is not.

I minimise the evil of not having the combs attached to the lower part of side and bottom bars of deep frames by having the side bars tapered down to same width as bottom bar (three-eighths of an inch) at the lower end, and I have the outside corners of the parts so tapered rounded off. This gives a greater amount of clustering-room between the lower corners of the frames, and allows a freer air-space above the entrance during hot weather.

(*To be continued.*)

Correspondence.

The Editors do not hold themselves responsible for the opinions expressed by correspondents. No notice will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITORS of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements.*)

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

THE 'DEPOSIT SYSTEM' FOR BEE-APPLIANCES.

[374.] I am delighted to see that you are prepared to adopt the 'deposit system' as regards sales of honey; but why stop short at honey? May I suggest that the system be extended to everything advertised in your columns, bee-appliances included? You have had complaints about certain dealers being dilatory in the execution of orders, even when in actual receipt of cash. Serious injury may be caused through such delays to individual bee-keepers, for bees and time wait for no man. Further, these complaints have undoubtedly caused injury to your advertisers, for the guilty parties, for obvious reasons, were not mentioned, and it must be in fear and trembling that orders are sent to a distance. By the introduction of the deposit system all this trouble is at an end. You receive the cash, an order is sent to any of your advertisers, with the understanding that the goods are to be forwarded, say, within three days. If the intending purchaser does not receive notice within that time that the goods are on the way the order is cancelled, you receive notice to that effect, the deposit and order are transferred to another dealer, and what might prove serious injury to the bee-keeper is averted.

I am sure the system would work to the satisfaction of all concerned; advertisers would find their business increasing, buyers would be sure of getting their goods in a reasonable time, and the percentage levied by you might prove sufficiently remunerative for the trouble involved.

The essential principle of the deposit system is that all goods are sent on approval, *the only judge of whether the goods are satisfactory or not to be the buyer.* If the goods are deemed unsatisfactory—reasons need not be stated—they are returned, the owner paying carriage one way, the intending buyer the other way. This has proved sufficient safeguard to avoid vexatious and unreasonable complaints. Personally (and I dare say other business men are of the same opinion) I would rather not serve a customer, or receive the goods back, than give dissatisfaction, however unreasonable that dissatisfaction might be. I therefore trust that the matter will receive your serious and favourable consideration.—P. HARBORDT, *Liverpool.*

[It can scarcely be expected that buyers of bee-appliances will avail themselves of the deposit system in all their dealings, as is suggested by our correspondent; nevertheless, it would be an advantage in a great many cases. It would also remove any ground of complaint if appliance dealers gave buyers the *option* of payment in that way if preferred. For ourselves, we shall be glad to see the system extended to everything connected with bees and bee-culture, wherever the circumstances make payment by deposit desirable.—EDS.]

FLOUR AS A PACIFIER—SOME SUGGESTIONS.

[375.] I was uniting two stocks of bees on Saturday last (one from a skep to one in a bar-frame hive), and tried the flour recommended by your correspondent (356) on page 462. It was a complete success. The effect in quieting both stocks was, one might say, magical, as they became instantaneously motionless, and I did not observe any disagreement after they were joined. I think, Mr. Editor, it would be a boon to bee-keepers if you would print in supplemental form—so that it could be pasted on a board to be hung up in the bee-house—'Rules for the proper management of bees,' so that they could easily be referred to under the different headings, such as swarming, hiving, feeding, uniting stocks, queen-raising, introducing food, or a change of blood, examining hives, placing and removing frames or sections, extracting, &c.; in short, succinctly and concisely enumurating all that is necessary to do in the ordinary treatment of the hive during the season, and apart from special treatment. It is not always convenient to refer to books or the *Journal,* or sometimes to drop on the particular instruction you require, which these rules would give at a glance. Especially would it be useful in case the person in charge of the bees was from home,

unwell, or otherwise unable to attend to their wants; any intelligent or 'handy' person could act in an emergency.—NOVICE, *Castleblayney.*

[It is very gratifying to receive reports like the above, and as a good deal of 'uniting' will be done during the next few days we trust to have further trials made of the flour plan. Nothing could be simpler or much less troublesome. Correspondents will oblige by forwarding reports of success or failure. Referring to our correspondent's suggestion that we should publish short leaflets or 'Rules for the proper management of bees' in 'supplemental' form, it shall have consideration, but we must see how far the question will be met in the forthcoming papers for winter reading.—EDS]

FLOUR AS A PACIFIER.

[376.] Before uniting stocks of bees I have always scented them well by feeding with syrup, flavoured slightly with peppermint, and found that all fighting was thus prevented. On one occasion, though, lately, after having put three stocks together in a frame hive for a shepherd in my usual way, the inmates were seen to be engaged in a number of fights, in spite of my precautions. As he was an old bee-keeper of some forty years' standing, he hurried into his cottage and brought out a scoop with a little flour in it, and at once liberally sprinkled all the bees, with the effect of at once staying all quarrelling. He remarked, 'They'll lick one another clean, and be as thick as thieves.'—G. M. E., *Stoke Doyle Rectory.*

FLOUR AS A PACIFIER.

[377.] Having read the letter written regarding the use of flour as a pacifier (*Bee Journal*, p. 462, No. 356), I should like to testify to the truth of the same. I have used flour for that purpose for more than twenty years, and have never found it to fail; therefore, I feel justified in vouching for the efficacy of it. All bee-keepers who have not used it would be wise in adopting the practice.—E. J. BURKETT, *Histon, Cambridge.*

A RECORD HONEY-YIELD FOR 1890.

[378.] Having sometimes found difficulty in getting bees to take to sections in crates, I tried this year putting a doubling-box on the brood chamber, and in it I had hanging frames, each holding six sections, $4\frac{1}{4} \times 4\frac{1}{4} \times 2$, and found the bees went into them as freely as on to ordinary frames. The hanging frames, which were two inches wide, had two slotted metal separators lightly tacked in each side of them, so that the bees could get at each section on all four sides. The frames were placed about half an inch apart. I have not had a single pop-hole in the whole lot of sections, of which I have taken 153 complete from two hives, each holding seven frames of six sections, although—one of the hives being rather weak early in the season—the sections were not put on until the middle of June. The sections were beautifully clean when taken out, as the bees could not get at any part of the woodwork except the edges, the quilt being on the top of the frames.

The honey season has been very good round here, the bees gathering, with little intermission, from the middle of May until the end of August. This is owing to larger quantities of clover and suckling, which, having been cut or fed off, have been allowed to grow again for seed.

I have taken over thirteen hundredweight of extracted honey from supers only, leaving the brood chambers untouched, out of twenty-five hives, including early swarms (the later ones I returned), and I consider this a very good performance.—O., *Bury St. Edmunds, September 29th*, 1890.

[So far as we know the above is the largest yield of honey for the present year in this country from so small a number of hives. We should like our correspondent to kindly report how many stocks he started the season with.—EDS.]

NAPHTHALINED HONEY.

[379] I send herewith a sample of honey from naphthalined hive, as suggested by No. 360. I fail to notice anything out of the common in its flavour, but I do not pose as a judge in such matters. No. 360 seems to have been more successful than I was in effecting a complete cure. There may have been a difference in the amount of disease to be cured, but I should like to know how much naphthaline he used, and how often. I fancy I could have used more with advantage.

It is perhaps late in the day to mention what I consider another improvement in the already twice improved 'Little Wonder.' I made the top of my shaft come about six inches above the top of the tin. About this six inches I wound some strong cord (window cord). One end of the cord was fastened to the shaft, the other passed through a hole in one side of the square frame at the same height as the said six inches. With a handle tied to it, the cord is pulled, and the machine whirls merrily at as high a rate as one wishes. I should like to caution those who try it to well secure their machines before starting. Mine was secured to floor, wooden partition, or anything else I could get hold of.—J. P. S. ASHTON (No. 343).

[The sample of honey sent has no trace of naphthaline either in smell or taste.—EDS.]

COLOURED PLATES OF VARIOUS TYPES OF BEES.

[380.] No doubt many readers of the *Bee Journal* welcomed, as I did, the announcement that 'Practical Papers' will be started during the winter season; and as those papers are intended to form a sort of 'text-book' for reference at all times, may I offer a suggestion which, if it can be carried out, would probably tend to make them even more valuable to very many who, like myself, would gladly become acquainted more closely with the different races which

populate bee-land, but who have little or no opportunity for even seeing those breeds so frequently mentioned in our *Journal?*

My suggestion is this: that a coloured plate or plates should be issued (same size as the papers) of representative bees—say, Carniolans, Syrians, Ligurians, natives, and any others which may present typical features. The figures should be given life-size, and, I need hardly add, the work should be high-class.

No doubt this project would involve much trouble and consequent expense, but the latter would be cheerfully borne by the subscribers to whom the illustrations would be a welcome addition, and, so far as I am aware, would be a unique feature in bee journalism.—R., *South Beddington.*

[The main considerations in the suggestion above are those of 'trouble and expense,' and if, as our correspondent believes, 'the latter would be cheerfully borne by subscribers,' we have no hesitation in saying that the 'trouble' would be as cheerfully undertaken by ourselves. But the project, if entertained at all, would require to be carried out in the highest style of art, the representation of the various races of bees being either 'hand-coloured' (a rather costly process) or in high-class chromolithography, and printed on fine plate paper. This would involve a heavier outlay than we could incur unless fair evidence was forthcoming that it would be met in the way suggested by our correspondent. —EDS.]

CURING FOUL BROOD IN NEW ZEALAND.

[381.] I see by the *British Bee Journals* lately arrived that foul brood is becoming very prevalent in Britain. Here in New Zealand the whole country is full of it. For eight years I have been fighting with it, and am now pleased to say it has ceased to have any terrors for me, because I can make my bees pay in spite of it. Three years since it was very bad all through the apiary, and I had spent much time and many pounds trying to cure the disease, using Cheshire's remedy with some, and McTain's with others, until during the Christmas week, finding that in spite of spraying and feeding I could not get the bees any further forward, but could only prevent them from going back, I in disgust took all the combs away from ten colonies, burnt some and buried others, and gave the bees foundation in the same hives they previously occupied.

The result astounded me. In a few weeks every one of these colonies was in a most satisfactory and prosperous condition, and gave me a handsome surplus of fall honey: they were not ready soon enough for clover. That autumn I had every comb out of the hives that had brood in it, and piled or tiered them up by themselves, until the bees had all hatched, keeping the young bees confined, so that there was no risk of their being robbed, and wintered the bees on new combs drawn from foundation and filled with honey during the season. The following spring the bees were all transferred into clean hives, and if any showed the slightest sign of the disease, as some of them did, the combs were melted down, and clean combs given them. Since then I have not let the bees winter in the combs they have used during the summer for brood, and at this date I have eighty colonies in such condition as makes me feel proud of them.

And now, sir, I would, with your permission, draw your attention to what I think is a mistake in giving advice to those who have but little experience with this trying disease. In the *B. B. J.* of May 22nd, you illustrate a piece of foul-broody comb, and it is a correct picture; but before the comb gets into this condition the disease has been in the hive twelve months, perhaps two years, though not in so malignant a form. It is the first stages of the disease that the novice should be taught to recognise, not the last; and the first stage is a cell here and there on a comb sealed, when the remainder are empty or filled with eggs and unsealed larvæ. A good queen does her work evenly and completely; there are no 'dropped stitches' in her work. When, therefore, any of these isolated capped cells are found on a comb, that comb should be at once melted down, for as sure as these are found and the vitality of that colony is impaired, whether by undue exposure of the brood, by a failing queen, or by a temporary want of food, then the more malignant form of the disease will be developed. Prevention is better than cure, and this precaution is far easier than the proper use of any chemicals and insecticides, which in the hands of the average bee-keeper are worse than useless.

Any treatment of infected combs which compels or induces the bees to clean out the cells cannot be too strongly condemned. What becomes of the infectious matter? It is carried out and dropped from a height in the air, to be blown possibly long distances before finding a resting-place (when in the spore condition), and carrying the disease into a previously clean district.

Clean hives and new combs are *the* remedy for foul brood.—T. G. BRICKELL, *Dunedin, N.Z., August 20th,* 1890.

[The above letter is especially interesting at the present time, as we are just in receipt of an order from the Hon. Sec. for a number of copies of the *B. B. J.* to be forwarded regularly to the Bee-keepers' Association at Otago, Dunedin, N.Z. We cordially extend the hand of good-fellowship to our brother bee-keepers on the other side of the globe, and trust to be often favoured with some account of their 'doings,' as possessing special interest for many of us in the mother country. On next page will be found an extract from the letter of the Hon. Sec. of the Bee-keepers' Association referred to, and it would appear that foul brood is causing much trouble there. Mayhap the relation of Mr. Brickell's experience in curing the disease may be of service to our new readers in New Zealand, for without doubt the most valuable testimony is that of the man who has fought with the disease and has cured it. It seems quite a fortunate coincidence that both communications should have reached us by the same mail.—EDS.]

BEES IN NEW ZEALAND—LEGISLATION FOR FOUL BROOD.

[382.] It may interest you to know that our honey crop last season was a perfect failure; I do not think I exaggerate when I say barely a ten per cent. crop.

Foul brood with us is rampant, but we are agitating for a Foul Brood Bill, and I saw a few days ago that our Minister of Agriculture stated in answer to a question put to him by one of our representatives in the House, that he quite recognised the urgent necessity, that he saw that the New South Wales Legislature contemplate passing an Act, and he promised during the parliamentary recess to draft a Bill for the suppression of foul brood. Our Society is doing all it can to educate the people into a more rational mode of bee-keeping than gin-cases and candle-boxes; but it is very disheartening for a bee-keeper of modern ideas, who adopts all the precautionary measures he knows of, and spends time and money in giving his bees new foundation, cleansing, disinfecting, and medicating his bees in the spring, to find in the autumn that they have again become infected, and have to repeat the process over again because of his careless neighbours.—Hon. Sec. *Otago B.K. Association, Dunedin, N.Z.*

BEE-KEEPING IN IRELAND.

[383.] Under the auspices of the Irish Bee-keepers' Association, I have lately undertaken a tour among the bee-keepers of Co. Dublin and Co. Louth; and as a short account of the state of apiculture in that part of the British Isles may be of interest to your readers, I beg to forward the accompanying report of my tour.

Landing at Dublin on Monday, August 25th, I could not, probably, have had a better opportunity of seeing the Irish metropolis at its busiest. However, having only the afternoon for leisure, I used it to the best advantage, though before nightfall I called upon Messrs. Edmondson and Abbott—names well known to Irish bee-keepers. Mr. Edmondson, who is treasurer of the Irish B.K.A., I found at his place of business, 10 Dame Street, and with him and his assistant I had a little conversation on bee-matters, and then examined a varied supply of bee-appliances, among which was the hive approved and, I believe, designed by the I.B.K.A. Committee. I next called upon Mr. J. A. Abbott, of the firm of Abbott Brothers, Southall, near London, whose establishment is located at 5 Merchant's Quay. Mr. Abbott was the only bee-keeper I met in Ireland whose face was familiar to me. Here I had an interesting chat and a look round the extensive and well-stocked premises. Though the bee-season was practically over, the hands were not idle, Mr. Abbott having gone in extensively for the manufacture of fancy woodwork for decorative purposes.

On Tuesday morning I met Mr. Henry Chenevix, hon. sec. of the Irish B.K.A., at Westland Row Station, and together we proceeded to Obelisk Park, Blackrock, the residence of Mrs. Goodbody. The bee-tent was erected near the Hall, and at 12.30, 3, and 6 p.m., lectures were given and questions on bee-management answered.

During the short intervals between the lectures, the stocks belonging to Mrs. Goodbody, Mrs. Mason, and Miss Connor were examined, and advice for their preparation for winter given. The weather during the day, owing to frequent and heavy showers, was most unfavourable for manipulations, consequently only one exhibition of driving could be given, and that had to be completed in a shower. A stock in a skep and another in a bar-frame hive were kindly provided by Mr. H. Read, of Straffan, a member of the Irish B.K.A., who was present during the afternoon.

On Wednesday, leaving Dublin early, I proceeded by train to Dunleer, where I was met by Mr. Oswald Hardy, the district secretary of the Irish B.K.A. With Mr. Hardy I rode to Ardee in a drenching shower, which prevented any calls on the way. After a rest we called upon Mr. Chrystal, a farmer who is also an extensive poultry breeder, and though a bee-keeper, he does not give any great amount of attention to his apiary. His bees have this year given no surplus; still, a previous record of 112 lbs. from a stock kept in a box on the let-alone, fixed-comb, or skep principle, proves that the district is a good one for bee-keeping. This grand take of 112 lbs. might, with a good stock in a bar-frame hive, and with proper management, have been doubled, so much superior is the new system to the old.

Our next call was upon Mr. Neary, of Cookstown House, who from one bar-frame hive, two skeps, and three boxes, took about forty pounds of honey. To Mr. Neary bee-keeping is not very fascinating, as he experiences a difficulty in disposing of his surplus.

Lissrenvey, the seat of Captain Filgate, was next visited, and here I came upon one of the best-managed and most successful apiaries I have visited. This year Mr. Hardy's success, like that of bee-keepers generally, has been small. From twelve bar-frame hives the total yield has been sixty one-pound sections, though many more were left on the hives for the bees to empty for winter food. Last year from eight hives Mr. Hardy took 850 sections, which produced the sum of 26*l.* 16*s.* 8*d.*, 20*l.* of which was clear profit. There is one interesting fact in connexion with the disposal of Mr. Hardy's surplus it may be well to mention here. Among other privileges members of the I.B.K.A. receive valuable assistance, if they require it, in the disposal of their honey, and quite half of Mr. Hardy's produce thus found ready sale through the Association's agent, Mr. Abbott. This apiary is rarely visited more than once a week, as Mr. Hardy lives at Dundalk, so his success under these circumstances should help to dispose of one objection frequently made to the taking up of bee-keeping, viz., 'It takes up such a lot of time.' Mr. T. F. Filgate's apiary, consisting of five

bar-frame hives and one skep, is managed by Mr. Morgan, and though a poor return has this year been made, last year's was good.

Louth Hall, the seat of Lord Louth, was next visited, and a well-managed apiary inspected. Mr. D. Shera, the steward, with the assistance of T. Collan, the gardener, has taken from nine bar-frame hives and two skeps about 100 lbs. of honey. Here, as in most apiaries visited up to now, swarms have been very scarce, unfavourable weather having set in just when the stocks were at their strongest and likely to throw out swarms.

This day's tour was closed by a visit to the apiary of Mr. Grimes, of Drumleck, near Castlebellingham Station. The yield from 7 bar-frame hives was about 40 lbs. of surplus. Mr. Grimes is fond of bee-keeping, though being a hard-working farmer he does not feel able to devote the time which his apiary should receive. To Mr. Hardy he expressed indebtedness for the many hints he had received.

The car in which we had been driven from Ardee was dismissed at Castlebellingham Station, and we proceeded by train to Dundalk, where I spent the night with Mr. Hardy.

On the following morning I proceeded by car to Tullagee, to the residence of Mrs. Collan. This lady's apiary is extensive, though it is composed principally of skeps, and has not up to now been a success. After examining the hives, and giving advice, I was driven to Farndreg, where I examined a bar-frame hive belonging to Mrs. Barton, and which, from the evident interest in bee-keeping here displayed, I conclude is the nucleus of a small but successful apiary.

From Farndreg I returned to Dundalk, and thence proceeded by train to Ghan House, Carlingford, the residence of the Misses Rutherfoord. Carlingford appears to me to be a bee-keeper's paradise; clover during June and July is abundant, and subsequently, as was the case during my visit, the bees work most industriously on the heather which clothes the Foy Mountains, at the foot of which Carlingford stands.

Miss E. E. Rutherfoord's apiary was first inspected, and it is one not easily forgotten. This lady is a genuine bee-keeper. She not only manages her apiary herself, but makes her own hives. Her apiary has never exceeded twenty-two hives, and though the season, owing to the continued unfavourable weather when the clover was in bloom, was so poor generally, Miss Rutherfoord and her neighbours will have a fair surplus of heather honey. The success of this apiary may be encouraging, therefore I give the following particulars:—The profit from the sale of honey in 1887 was 35*l.*; in 1888, 20*l.*; in 1889, 27*l.* Surely this is one more proof, if more are necessary, that bee-keeping may be made very profitable in favourable situations and under favourable conditions.

All the bee-keepers in Carlingford, who may be said to be under the care of Miss Rutherfoord, who acts as District Secretary, were then visited, and it was a pleasure to see bee-keeping in such an advanced and flourishing condition.

The present forward state of apiculture here is due in great measure to the impetus given to the pursuit by Messrs. Abbott and Carr, who visited the district when on an extensive bee-tour in 1880. One old bee-keeper, whose exertions are attended with considerable success, told me of the visit of himself and friends to Newry to hear the wonderful things which these veteran bee-keepers were telling their Irish audiences might be done with bees under proper management. To him the visit was extremely valuable, and the information then received has borne fruit. Early in his career as an adherent of the new school of bee-keeping, he made casts from his first purchase of foundation, and so was able for some time—in fact, until he found 'the game not worth the candle'—to manufacture whatever foundation he thought it necessary to use. Though he has ceased making foundation, he makes his own hives, frames, and sections, and very creditable work they are.

My last call was upon Mr. Chambers, the resident engineer at Greenore. Though an efficient bee-keeper, his success for several seasons has been very poor, owing to circumstances beyond his control. Being surrounded by the sea on three sides, his bees do not always choose the land side, and in weather at all rough numbers of heavily laden bees are lost, to the detriment of the stocks. A look at the bees and a chat on their condition and requirements concluded the business part of my tour. The early part of the evening, until the boat left for Holyhead at 8.45, I spent very pleasantly with Mr. Chambers; and before closing this report I wish to say how sincerely I thank Miss Rutherfoord, Mr. Oswald Hardy, and Mr. Chambers for their hospitality. To Mr. Henry Chenevix, I am, of course, most indebted, not only for the tour, but for the very excellent arrangements he made in order that, as far as possible, my visit should be of service to those bee-keepers with whom I came into contact.

Mr. Abbott wrote in the *British Bee Journal* on his return home in 1880, 'There is scarcely a meadow, farm, or tract of fifty acres in the south-east or north of Ireland in which that amount (three tons of honey, realising, at 1*s.* per pound, 336*l.*) might not have been realised during our month's tour there, had there been bees to collect the wasting nectar; it was

> '"Honey, honey everywhere,
> And not a bee to sip."'

This, at the present time, is, I am sure, no overdrawn picture of the capability of the districts I have been through to yield an enormous amount of delicious honey; and I would strongly urge bee-keepers and non-bee-keepers who are desirous of bringing the modern methods of bee-keeping to their aid, to write for information respecting the objects and privileges of the Irish Bee-keepers' Association, to Mr. Henry Chenevix, the Hon. Sec., 15 Morehampton Road, Dublin.—C. N. White, *Somersham, Hunts, September 29th,* 1890.

HONEY COMPETITION.

[384.] As no person has accepted the terms of my challenge which appeared in a recent issue of the *B. B. J.*, I now make the following offer, viz., to stage two distinct samples of run honey equal, if not superior, to anything produced in the United Kingdom. On my failing to do so in the opinion of Messrs. Cowan and Carr, Editors of the *B. J.*, I will forfeit a guinea to the funds of the B. B. K. A. As I have already forwarded my samples to the office of the *B. B. J.*, intending competitors will please do the same at once, so that a decision may be arrived at before the honey granulates, the result to be given in the *B. B. J.* and *Record*, the decision of the judges to be final.—JOHN D. MCNALLY, *Laurencetown, co. Down.*

[We fear our correspondent's confidence in the quality of his honey is not likely to be put to a very severe test so late in the year, since all the best honey produced this season is now probably consumed or sold. We consider it is rather a pity the honey in question was not entered at some of the larger shows, where it would have legitimately won all the honours to which it was entitled. However, the sample jars have reached this office quite safe, and we await any further 'development.'—EDS.]

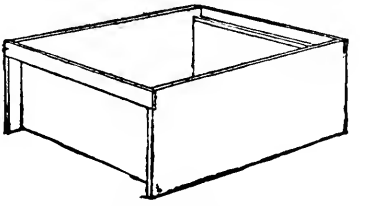
Queries and Replies.

[239.] *Bees refusing Phenolated Syrup.*—Inspecting my hives some time since, I thought they had foul brood, but not having time to attend to them, I closed them up again. About a fortnight ago, I cleaned up some empty hives, washed them inside and out with a strong solution of carbolic acid, and when dry transferred the bees to the clean hives on frames of old comb which I had previously fumigated well with brimstone. I then commenced feeding with phenolated syrup, as per Cowan's *Guide*, page 153. This they do not take well, apparently only from hand to mouth (do not store any). Now, the point I want to know is, suppose I fumigate some of the frames of sealed honey I have by me with brimstone, may I with safety return them to the bees for winter food, otherwise they will have none? Why do they not take the syrup more freely? I did not put quite so much phenol in as recommended, fearing to put too much. The queens have laid no eggs since transferring, and they are rather short of bees.—IGNORAMUS.

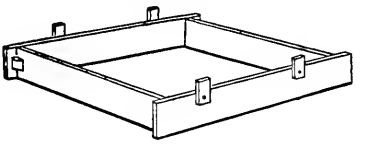
REPLY.—If the combs of sealed food are from foul-broody hives, on no account must they be given to the bees, as fumigation will not suffice to disinfect the honey in them. Phenolated syrup is always distasteful to bees, and they will often refuse to store it in quantity. Substitute formic acid (one teaspoonful to a quart of food) or salicylic acid, as per recipe in *Guide-book*, and give the food warm, in a 'rapid feeder' if convenient. It is now too late to expect queens to recommence breeding.

[240.] *Space below Combs in Winter.*—I always read 'Useful Hints' very carefully. In your issue of September 25th, speaking of packing for winter, you say, 'We give three inches of space below the combs by means of an "eke" or "riser" which is slipped under the stock hive.' May I ask you to say (1) what this 'riser' is, and (2) where under the stock hive it is placed? and (3) whether when it is placed there is a space all round the hive between the hive itself and the alighting-board. At the end of next week I shall have given my two stocks forty-two pounds of sugar made into syrup—that is, twenty-one pounds each. (4) Ought that to be enough? Please say, as I wish my stocks in the country to have plenty of winter store.—G. B., *Craven Terrace, W.*

REPLY.—1 and 2. The 'eke,' or riser, is simply a rim of wood three inches deep, but in other respects of same dimensions as the stock hive. To make the matter thoroughly understood we give a sketch of the body-box or



brood chamber (without frames), and also a cut of the 'eke,' and it will be seen that if the body-



box is placed above the 'eke' it fits exactly, raising the former up three inches and leaving that amount of space below the frames. Hives of different construction will require some modification of the above plan, but wherever space below frames is given only a very narrow entrance is needed. 3. The only change effected by placing the 'eke' below is to make the body-box three inches deeper, and so allow that space below the frames. 4. Twenty-one pounds of sugar made into syrup is more than enough for each stock.

[241.] *Over-feeding for Winter.*—I am obliged for your replies to my queries (231). While awaiting these I continued feeding, and my two stocks have had about thirty-seven pounds of *sugar* between them—say, about twenty-five pounds of *syrup each*, in addition to what honey they had. Consequently when I looked at them on Saturday almost every cell, not occupied with brood, appeared full of sealed stores. There were brood and eggs in each hive. I have now packed them up for the winter, and do not intend opening them again until next spring, but would ask:—1. Will the excessive

supply over the orthodox twenty pounds be any detriment, either to the wintering or in the spring? 2. Will any harm come from a frame partly filled being left behind the division-board? 3. I have a few pounds of syrup left on hand, will it keep in glass bottles and be fit for use in spring?—EAST DULWICH.

REPLY.—1. No detriment worth considering. 2. Move the frame indoors, or into the body of the hive. 3. Yes; if boiled up again in spring, and a little water added.

[242.] *Brood in Sections.*—The super in my hive still contains brood on four or five sections, and I want to get all the bees down into the brood chamber below, so as to feed up for the winter, as they have little or no honey. Would you kindly say what I should do?—H. T. ARCHER, *Newcastle-on-Tyne.*

REPLY.—The sections may be either placed in a 'broad frame,' and hung in the body of the hive till brood is hatched out, or they may be put together in centre of section rack, while the remaining portion of the rack not occupied is covered down with quilts, except such portion as is occupied with feeder.

[243.] I am in trouble about one of my six hives. The other day I was taking some frames to give to driven bees, when I noticed some cells with dead grubs in in this hive, so I didn't take any frames out, but commenced feeding with medicated syrup (salicylic acid). They haven't cleared the cells out, and I have sent you a frame by parcel post for your inspection. Please say if it is foul brood, as I fear, or merely chilled; the hive was rather weak. Should I try the formic acid treatment as described by Mr. Sproule, or is it too late, as there is now no brood in the hive? The bees are blacks; have given me a few sections, and look well, but are rather weaker than my other stocks, and were robbed for two or three days, after which I stopped it. Is it probable that the other hives will become infected, and what precautions ought I to take?—MOUCHE-À-MIEL, *Wolverhampton.*

REPLY.—The comb sent is infected with foul brood, apparently of some standing. It is not of a virulent type, however, and, with care, may yield to treatment. It is a pity you allowed the hive to be robbed after noticing the suspicious cells. It is now too late in the season for formic acid treatment, except in the food (a teaspoonful to each quart of syrup). Remove all combs with more than one or two sealed cells—cut these latter out—and sprinkle a pinch of naphthaline on the floor-board at intervals of a month or six weeks during the winter. Watch carefully in spring, and, above all, do not allow the stock to be robbed by the other colonies.

Echoes from the Hives.

Sunderland, October 3rd.—Here, as in many other districts, the season has been a disappointing one. Stocks started the season in capital condition, and in early June gathered about thirty pounds of sycamore honey; then cold weather set in, and the clover, though abundant, was a total failure as far as honey was concerned. All through July bee-keepers here kept up their spirits in the hope of a fine August, but again we were doomed to a partial disappointment, for bee-weather did not begin till the close of the month. However, my five stocks yielded about forty sealed sections and nearly fifty unfinished ones. My hybrids did not swarm at all, but one stock of Carniolans gave a swarm and two casts, and consequently had to be fed nearly all the summer.—FRANK GAYNER.

THE ST. BEUNO'S METHOD OF UNITING.

SIR,—When I said in my last letter that the time (September) was at hand for uniting, I had in my mind weak or queenless stocks to be supered over strong ones, rather than the union of two weak stocks, which latter, I think, you advise us to unite in October, when natural dwindling has begun to tell, and weakness is more easily detected. If *all* have been previously fast fed we have the advantage, after uniting, of a reserve supply of stored combs, always so useful for spring feeding or for hungry swarms.

For the benefit of those, then, who have postponed their uniting until October, will you again allow me space to give more in detail the working of the new method—*new*, that is, in so far as anything under the sun can be called new, for I am quite prepared to hear that our old bee-veterans have practised it for years. Judging, however, from the applications I have had for further details, the plan presents itself as a novelty to some. Further, it will be seen, from what follows, that experiments have caused me to modify my first mode of procedure, though not substantially.

I. In the case of frame hives having their combs running *parallel* to the entrance, I have acted as follows:—1. Contract one stock towards the back, to half or more its frames, by means of the divider, fronted for the present by a dummy-board. This divider need be nothing more than a sheet of perforated zinc, bee-proof all round, and nailed to a strong thin lath the length of a top bar. The divider should be hung against the imprisoned bees, *wood inwards*, so that when the dummy is placed against it no space is left between up which bees can pass. 2. Until the bees have nearly all drawn in—and keeping the hive cool will help to that end—let the divider and dummy be both kept up a little, so that the bees can pass in beneath. Where metal ends are used, the divider, wood inwards, may be hung on them. In the case of alternating distance-pins, I should extract one, if possible, for the present; or, if wooden shoulders, I should—well, I should manage somehow. 3. The bees having mostly gathered in, promptly but quietly let down the divider and remove the dummy, and now be very

careful to secure the quilt against being pushed up by the bees, for they will try hard, especially next morning: drawing-pins are excellent for this purpose. 4. Place the hive on the stand of the other stock, and transfer to it from the latter any brood combs as a matter of course, and food combs by preference. Obviously, for ventilation's sake, the imprisoned bees should have a larger proportion of combs, number being about equal. 5. If there is to be a choice or not between the queens, one ought to be first found and caged over her frames until the last-mentioned step, when she may be removed, to be killed, sold, or used for a queenless stock as required. If she cannot be found the two may be left to fight it out *à l'outrance*, without much hazard. 6. Keep the prisoners cool, even at night, but not cold. 7. Next day to uniting move the hive midway between the former positions, with another remove the day after if desirable. 8. Thirty-six hours, *at least*, after incarceration unite the two lots by quietly withdrawing the divider. This will be all the more easily accomplished if two quilts have been used, meeting or overlapping each other at the divider.

II. Where frames run at *right angles* to the doorway the process is identical, except that the divider and dummy are set down at once to the floor-board, and *that* part of the doorway left open to the bees is closed tight towards evening with a rag or the like, if the doors, as is usual, are not made so as to do so.

III. Stocks driven from skeps or swarms are left on their stand until the frame hive is ready to receive them. If there is an insufficiency of drawn-out comb or full sheets of foundation at this season of the year, they should be supplied with their own combs mounted in frames—at no time, however, an easy task as regards their future security. They must on no account be supered over a stock, except between combs where top ventilation can easily be afforded them, and even in this case care must be taken to have air-space beneath the whole divider. By neglect of these precautions I killed a small lot of driven bees supered in a box.

To conclude, if the method as above described is carried out with a proper attention to details, I can guarantee that there will be absolutely no fighting, but I cannot so guarantee the absolute safety of the queen. Bees are 'tricky things,' and it takes so little to make new-comers turn upon and rend her; but, so far, out of seven cases I am in doubt, as I write, about the safety of only one queen.—Yours, &c., S. J., *St. Beuno's College, St. Asaph.*

BEE CLIPPINGS.

A 'Tall' One.

'News comes from America that great swarms of bees had been seen flying into a fissure in a cliff 170 feet high, on the bank of a river in Kentucky. As it was impossible to enter this hole without being stung to death, a well-sinker got an idea that he could reach the honey by boring for it. He accordingly set to work, and at a depth of eighty-five feet reached the honey, which came up in such quantities that after all the various tubs, barrels, and other available utensils from the neighbouring farms were filled, the people had to send to the nearest towns for more. It is supposed that the bees have been depositing honey in this rock for years unobserved, and that there is an immense store of it to be got out somehow.'

Bees Boycotting an Auction.

A Stewartstown (Ireland) correspondent writes that a ludicrous incident occurred a few evenings ago at an auction at the residence of the Rev. Robt. Wallace, Ballygorey Manse, near Stewartstown. Among other things in a yard were several beehives, and a large crowd of persons, probably 400 people, were assembled at this point attending to the sales. While so doing some person removed the top of one of the 'skeps,' and immediately the bees swarmed out in great numbers, attacking every one near the hives. About fifty persons were stung in as many seconds, and ultimately the whole assembly of laymen and clergymen had to seek safety in flight, pursued by the bees, and in a short time the whole place was deserted. After some time the indignant bees returned to the hives, and the auction was proceeded with.—*Ulster Echo.*

HUM, SWEET HUM.

Though soft strains of music from palace may come,
Be it ever so charming, there's no sound like 'hum.'
The bees are so busy this bright, sunny day,
There's joy in the air—so happy are they.
Hum, hum—sweet, sweet hum,
In all the bright spring-time there's no sound like 'hum.'

When prisoned at home during Winter's long reign,
How joyous to bask in the sunshine again!
The birds singing gaily, the frog's cheery call—
Give me them—and the 'bee-note,' sweeter than all.
'Hum, hum—sweet, sweet hum,
The 'bee-man' can never dispense with their hum.

To me there is nothing so sweet to the ear
As the music that comes from the apiary near.
No allurements abroad can entice me away
From the spot where the bees, though at work, seem to say,
'Hum, hum—sweet, sweet hum,
No labour is irksome to us when we hum.'

Toil on, little workers—evangels are ye
Of the sweets in this world to be garnered by me—
The sweets that from cheerful activity come;
Then cease not to labour, continue to hum.
Hum, hum—sweet, sweet hum.
There's no earthly music like *Industry's* hum.

Eugene Secor.

—*American Bee Journal.*

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

JAMES WOOD (Aberdeen).—The bee reached us in such generally mashed-up condition—headless and flattened in post—that it would be quite impossible to tell if it were a 'young queen,' or 'if it had been fertilised,' or even 'if it was a black queen.' Luckily, however, enough remained to enable us to assure you it is not a queen at all, but a worker-bee.

J. BINGLEY.—A super clearer constructed on the lines of model sent would no doubt answer the purpose, though it would not be so *safe* in operation as that of Mr. Webster, and before it was perfected and of full size it would probably cost quite as much as the one referred to. We suggest that you make one, test it in practical use, then report results.

C. F. JOYNER (Malvern).—*Bees dying off.*—There is nothing in the bees sent to indicate disease, so that if the mortality continues we see nothing for it but re-queening.

ROBT. DE B. SAUNDERSON.—The comb is badly affected with foul brood. Under all the circumstances, and since you ask us to advise you to 'feed or burn,' we say *burn.*

J. L. D. (Darlington).—*The Commercial Value of Pollen.*—Pollen, after being gathered by bees, has no commercial value. It is indispensable to bees as supplying the nitrogenous or tissue-forming food necessary for the growing larvæ; but beyond that we know of no use to which it could be applied.

A. E.—*Fixing Foundation in Frames.*—Since your top bars have no saw-cut, the foundation must be fixed by running hot melted wax along both sides of the junction between the foundation and top bar. You had better not attempt giving full sheets till you have had some practice in fixing it firmly, as serious mishaps occur sometimes when the sheet of foundation breaks down in the hive.

DERBYSHIRE.—The name of plant is *Sedum fabarium.* Bees are very partial to it, but it cannot be counted of much value in consequence of its scarcity.

A. MAZELL (Bradwell-on-Sea).—The plant sent is the Canadian fleabane, now a common weed in many parts of England. We are not aware of its possessing any value as a honey plant, but it should yield pollen well. The honey sent is about the thinnest in consistency of any we ever saw. If it really is all honey, the quality is quite new to us, and the flavour is not good. It would be unsaleable as honey.

J. W. BLANKLEY.—Thanks for your sample of this season's honey, which is a very good one.

THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

No. 434. Vol. XVIII. N.S. 42.] OCTOBER 16, 1890. [*Published Weekly.*

Editorial, Notices, &c.

THE DEPOSIT SYSTEM.

The remarks made in our leader a fortnight ago on the subject of defaulting honey buyers, have produced evidence sufficient to prove that a real want will be met by establishing a deposit system on the lines there indicated. It need not be supposed that any great portion of the honey trade of the country will be carried on through the proposed agency, but, beyond meeting special cases, to offer buyers and sellers alike a safe and reliable medium by means of which business may be done without risk on either side, is an advantage which must be obvious to all.

Whether the proposed scheme will be extended so as to include the buying and selling of bee-appliances, as suggested in No. 374, on page 484 of last week's *B. J.*, or how far other dealers will agree with the proposals in the letter referred to, time will show. In any case it is not easy to imagine a simpler or more equitable method than the one proposed, of removing the grounds of complaint of which so much was said in our columns a few weeks ago.

Judging by the experiences there detailed, buyers were seriously inconvenienced at times, and, on the other hand, we know enough to warrant us in saying that the fault was not always on the side of the dealer. However this may be, there seems substantial ground for the adoption of some such arrangement as is now proposed.

Our own opinion of the scheme, as applying to manufacturers and dealers, is embodied in a footnote to the communication referred to, and, as there stated, we do not think that the proposal on the part of traders in bee-goods need go beyond allowing purchasers the option of buying through the deposit agency if preferred. If this concession was printed in price lists and trade catalogues, all uncertainty and risk would be removed, and the 'cash before delivery' proviso practically ensured.

Whether the deposit system will be largely taken advantage of by bee-keepers or not remains to be seen; but in view of our part of the undertaking, and for the purpose of putting it into practical shape, we have availed ourselves of the experience of its editor, as expressed in the printed conditions in the columns of our contemporary, the *Bazaar, Exchange and Mart*, as being both effective and safe to follow. It may be well, also, while the subject is before us, to emphasise the 'conditions' of sale, purchase, &c., by printing the particulars here just as they will appear above the permanent column devoted to that department:—

DEPOSITING.

1. Method.—When strangers are dealing together, the purchase-money of the articles is deposited at our office. We acknowledge receipt of the deposit to *both* parties, and hold the money until we are satisfied that the purchase is concluded. If a sale be effected, we remit to the seller the amount deposited, less a charge of 6*d.* to cover the expenses of postage, &c. Cash will be forwarded by cheque or by postal order as preferred. In the latter case cost of orders will be deducted, in addition to the fee of 6*d.* If a sale or exchange be not completed, we return the amount deposited, after making the same deduction. By this means buyers and sellers are secured from fraud.

2. Deposits.—Postal Orders (drawn on General Post Office) and Cheques must be made payable to John Huckle, and crossed 'Bucks and Oxon Bank.' The numbers of the Postal Orders should be kept by the sender.

3. Honey on Approval.—All honey will be sold by sample, which must be sent direct to buyer.

4. Bee-appliances.—In ordering, the time allowed for completing the order to be stated to us when sending cash. If maker accepts, we hold cash till transaction is satisfactorily completed, when the amount will be remitted subject to conditions as in Clause 1.

5. Bees and Queens.—These will be dealt with entirely by the parties concerned, so far as price, &c., goes, and when the purchase is satisfactorily completed cash will be remitted as per Clause 1.

6. Goods in Transit.—These are at the seller's risk, *i.e.*, any damage to or loss of an article on its journey is borne by the vendor; but a rejected article must be properly packed and returned by the same means as was used in sending it.

7. Carriage.—The carriage of all goods, *except such as are sent by post*, is payable by the buyer, unless otherwise agreed. If any article sent on approval be returned, each party to the transaction must pay carriage one way.

BRITISH BEE-KEEPERS' ASSOCIATION.

NOTICE.

The next quarterly meeting and *conversazione* will take place at No. 105 Jermyn Street, on Tuesday, October 21st, commencing at six o'clock. Members wishing to introduce subjects for discussion, or to submit new inventions and improvements relating to bee-culture, are requested to communicate with the Secretary, in order that the same may be placed on the agenda. The meeting of county representatives will take place at 17 King William Street, Strand (third floor), at three o'clock. Secretaries of county associations are requested to advise their representatives of this meeting.—JOHN HUCKLE, *Sec.*, *King's Langley, October 11th*, 1890.

DEVELOPMENT IN THE HONEY-BEE.

By R. A. H. GRIMSHAW.

(*Continued from p.* 459.)

Being deprived of what we human beings call language, and confined to those instinctive inborn means of communicating ideas we find common to so-called lower animals, the honey-bee, by constant use of its senses of touch, hearing, smell, and sight (being unendowed with the reasoning faculty), its dependence on these powers becomes much increased, and extraordinary development of them is only to be expected; such we find to be the case. Savage man, whose power of reasoning lifts him, in many cases, very little higher than the surrounding brutes, develops to a wonderful extent the powers of hearing and sight, which alone keep him from extermination individually and in the aggregate. He, who claims to be the highest form amongst living creatures, shares in the common lot of *increased development* of remaining faculties, where *deprivation* in any degree has taken place. He shares with the lowest in that mysterious method of reward and compensation for a seeming injury done by destiny. For physical blindness, he is repaid by such a development of hearing, touch, and taste, as appear to us truly God-sent, and although scarcely within my subject, I will state here that I have known cases where true life, true enjoyment, and appreciation of Heaven's gifts have only commenced after some afflicting deprivation. If we know there are 'sermons in stones,' we also know there are 'lessons in the hive;' in fact it is only in this knowledge that the writer has taken up his pen. Continuing on compensation, it is very easy for us to see in the increased powers of maternity in the queen-bee, in the absence of the necessity to gather food, build cells, and share in the general labours of the home, makeweights for the loss of the exquisite enjoyment afforded to the worker.

For the absence of the delights of motherhood in the worker-bee, and for the ceaseless labour, day and night, throughout its life, chiefly for the welfare of others, reward may be seen in many directions — government of the hive, nursehood (for the nurse *does* care for the brood, although the queen may not), the merry, delightful flight in the early morning air, gently blowing about the hive, and charged with a fragrant invitation from unseen hosts of floral friends, who faithfully fulfil their promise of hearty welcome and reward. (Such would be the language of the fanciful early writer on apiculture.)

What the luxurious intoxicating pleasure of a worker may be, as she enters the perfumed corolla, guided to the nectar hoards by contrivances against error as accurate as any to be found in human palace, may only be imagined by those who can conjure up in the mind's eye the blaze of iridescent colour-rays, which are perceived perhaps by the ocelli as the sunlight penetrates through those richest of all Nature's gems, the coloured cells of the flower-petal.

Do you say, then, that the nectar is wages given by the plant for services rendered by the bee, and that the bee performs this duty passively, both plant and bee having some intuition of their value to each other? Does the plant by any action of discernment in itself produce its pollen (as is very frequently the case) before the pistils and ovary are ready, so that cross-fertilization may be ensured by cross-visits with plants some degree earlier in maturing? or does the bee know in any fashion that its immense dusting with pollen need not be cleared off till the labour of honey-getting be past, and that some of it will be stolen by the next flower visited, the theft being instantly more than repaid? In other words, have any animals (other than man) or living things any glimmering of knowledge of their uses one to another, of their mutual interdependence, and (to use the pet phrase) have they *adapted* THEMSELVES to their environment and to each other? In my opinion, emphatically no! I would prefer to read of animate and inanimate things *being* adapted to surroundings by an ever-present Power, a Power felt by all, I imagine, who are able to use their reason aright. I deny the knowledge by the bee that it is of any service to the plant, exactly as my readers will admit that the plant can have no knowledge of the mutuality of its contribution to the harmony of nature; and I doubt very much if the bee has any perception in itself of the benefit it confers on the brood, by feeding it first with special brood-pap, and next with honey and pollen in various proportions.

The immense usefulness of the honey-bee in the cross-fertilization of plants can no more be known to the bee than can be her minor good as a food-producer for man, &c.; she has simply and blindly, instinctly and unreasoningly, to go through her impulsive duty, and this, too, when she is storing a surplus of honey for a coming time of adversity.

The common notion that the bee is endowed with a rare amount of foresight in thus setting man an admirable example, must go by the board, so far as I am concerned. It is greed, and nothing but greed (for a high and wise pur-

pose), that guides the bee in its gathering. There is honey to be got, there are cells to store it in; if not there is an enforced quietness, a rest from hard work, and wax is secreted for a future supply of store-closets; honey is crowded into the hive everywhere, often at the expense of the brood nest, by bees who do not live to partake of it themselves, and who surely have no prescience of the requirements of unborn generations. They are obeying inward impulses, and, by obeying, are fixing and developing them where, as in the case of surplus-getting, such action proves beneficial to the species; where such obedience is detrimental to the race, the instinct dies out with the species or variety so acting.

To give to the bee a knowledge of its value to surrounding life, both animal and vegetable, would be to endow it with a power of refusal to perform the services necessary, and this would be tantamount to granting it the possession of an amount of reason almost equal to that of man. As I have endeavoured to show earlier on, the faculty of reason is a process of deduction, a question of mathematics peculiar only to animals which have been able to build up, bit by bit, over a period of time scarcely to be reckoned, what we term language in its full sense. The brain-power to do this we can only find in man. Sally (the Simian) at the 'Zoo' may be able to count up to ten, but it would, indeed, be æons before her descendants could invent a numerical system, let alone such a metrical one as the 'ancient misleaders' would have us believe is used by the honey-bee in cell-building. I am trying to take from the bee much of the credit it is believed (by many besides the ignorant) to deserve, and in my search for truth in this matter, I am convinced I am serving in a righteous cause. Science (knowledge) has been more hindered in this world by fanciful and picturesque fable and fiction, than by any other obstacle I can think of, and when we want the *truth* of the matter, however radical and startling it may appear, be sure error is not often the fruit borne of such a search.

(*To be continued.*)

THE SCIENCE OF BEE-KEEPING.

HEAT: ITS ECONOMY AND DISPENSATION.

(*Continued from p.* 484.)

I have always managed my bees so as to cause the queens to breed to their utmost, and for several seasons during which I used tiering hives about a foot in diameter, with fixed combs, and square storey hives, with frames a little less than a foot long, side by side with the long 'Broughton-Carr' hive,* I noticed that colonies would develop about the same in each form of hive. By the time that the Carr hives were extended to their twenty frames, and had a super of twenty more frames on top, or two crates of sections, either form of the tiering hives before mentioned would be storeyed up to two feet or two feet six inches in height, and have brood almost two feet high in the centre combs. If the weather kept fine the yield of sealed honey was about equal for both forms of hives. But, as in most cases there came a spell of unfavourable weather, during which time the column of brood in the tall hives would descend very sensibly, brood would not be replaced when hatched out at the top of the nest; the honey in the top storeys was then at a greater distance from the brood and cluster, and the combs henceforth were not so well filled and sealed as in the long hives.

This descent of the brood in the tall storey hives during unfavourable weather was due to the fact that the cluster of bees under the brood of such hives could not maintain a column of heat of the same height during bad weather as it could when favoured with a warmer atmosphere; hence the space occupied with brood had to be lessened in height from the top, since the cluster could not move upwards and leave the brood beneath to perish for lack of warmth.

I shall, without adducing further evidence, resume by saying that the prime factor for generating and dispensing heat, *i.e.*, the main cluster of the bees themselves, is placed *under* the brood; the odd bees scattered here and there on the combs being simply home-toilers fulfilling other special duties; if heat unduly escapes either at the sides or at the top, or if cold air enters in too great quantity by the doorway, auxiliaries will be placed there also, having special duties to perform; but these must not be confounded with the only true generator of heat, viz., the cluster, from which they are but casually detached for other duties.

Sealed brood is also a powerful auxiliary in maintaining a uniform warmth in the brood nest, and when there is a considerable quantity of it in the comb, and the weather is favourable for gathering, by far the greater portion of the bees may leave the cluster and be spared for honey-gathering during the day-time. In early summer, as the temperature rises and the number of bees increases daily, the younger members of the community station themselves around the inside of the hive; these are the gatherers of the main honey crop, and the larger their number in a hive, the greater the amount of surplus in a good season.

When bees are fanning during hot weather it is usually supposed they 'fan' with the purpose of *causing* a current of warm air to flow out by the entrance. To *cause* implies in a certain sense *to create*. Such, however, is not the case; bees when acting thus are only serving as auxiliaries to *accelerate* and *intensify* the down current of warm air already existing, and because it conduces to their welfare to do so.

Very early in the morning—say, three or

* There is no hive bearing the above name. We presume our correspondent refers to that known as the 'Bebington Hive,' described eight or nine years ago in the *Journal of Horticulture*.—EDS.

four a.m.—after bees have been gathering well the previous day, there may be no bees seen fanning at the entrance, yet by placing your head a certain distance above the hive-mouth the outgoing perfumed vapour will be quite perceptible.

In concluding my remarks on the manner in which bees economise and dispense warmth to their brood, I will give the rule which I have framed on the subject, as follows:—Hive bees are obliged by the circumstances in which they are placed to economise and dispense warmth to their brood by placing themselves *under* it, just as birds are obliged to place themselves *over* their young, and some fur animals at the side.

Wasps.—After considering the bee in its relation to heat, it may be instructive and not out of place in dealing with the heat theory, to consider how far the natural history of the wasp will help to illustrate our subject. There are many points of similarity between the two families, bees and wasps; they are insects of nearly the same size, both fly abroad in search of their food, and they each dwell in populous colonies, besides having many other habits in common.

Before taking up the queen-wasp as we find her in early spring, I may premise by observing that two great principles are constantly at work in this world; without them all life would speedily come to an end; they not only propagate life and ensure the survival of the fittest, but they assist even in excelling that which has been before—transmitting material and immaterial qualities of one generation on to the next with supreme exactness. One performs the work of extension, the other of concentration. Both these great laws are infinite in their operations; that of concentration forms a world, or, I may say, worlds, with all their diversities and attributes, within a speck; while that of extension exercises its duties in myriads of worlds throughout infinite and boundless space.

We can observe these two principles at work in all forms of plant life and animal life around us. The existence of the plant is concentrated in the bud or seed, the bee or wasp colony in the queen; and here we have the immaterial and material germs of reproduction concentrated in a nutshell—nay, into a space or point so minute as to baffle detection even with our best optical instruments.

The queen-wasp, therefore, represents a diminutive point formed during summer from the wasp colony; quiescent all through winter, but roused into activity in early summer, to build and reconstitute such a colony as that from which she derived her own life and being. Moreover, to commence founding a colony single-handed, under conditions such as may well make us marvel how she succeeds in accomplishing a seemingly impossible task.

Our careful insect, possessing within her own body the means of generating life, diligently searches for a dry bank or hedge, where the heat of the sun, stored during the day, may aid her in maintaining the necessary warmth for her brood; she also carefully selects a spot free from the strongest and coldest winds, where she may dwell in relative safety from casual enemies. She excavates the ground and forms her first tiny horizontal comb, the circumstances in which she is placed compelling her to follow a certain course of action.

With admirable sagacity, she chooses the beginning of an early spell of fine weather to confide her first few eggs to their small cells, the brood and young worker-wasps from which are little more than one-third the size of those hatched later on under more favourable conditions. The mother-wasp sits right under her eggs and brood, which she warms during night-time and cold weather by the vaporous heat emanating from her capacious abdomen—that fuel chamber where food is consumed; while the warmth is retained by the dome of the extremely small chamber of her nest. Sitting at the side or on the top of the eggs or brood would be quite useless in her case, and the queen-wasp knows it, or at least acts as if she did.

Wasps do not secrete wax as bees do, they form their combs from bits of decayed wood, which they masticate into a paste; they also cover the cells with a sort of parchment of their own manufacture. Building in the ground as they do, they are obliged to form the combs horizontally, not only from the necessity of economising heat during the cool weather, but also from the fact that they cannot attach their combs to the loose soil at the top of their nests, nor can they rest them on the bottom, when they are constantly enlarging. The chief cause, however, is found in the fact that if the combs were built vertically in a nest being constantly enlarged on all sides, the dust and loose earth would fall freely between the combs, and give endless trouble. There are still other and most interesting reasons why wasps are obliged to build their nests in the form they do. In fact, the wasp's nest is a splendid subject for the consideration of all observant men. Notice its outward spherical form, and the round hollow shell in which it is encased, and we see that for horizontal combs, where an equable temperature is of such importance, the domed top of the hollow in which the nest is contained becomes an absolute necessity—a necessity which does not exist with the vertical combs of the hive-bee.

As already said, wasps, like bees or ants, keep their brood warm by placing themselves under it. Take as an illustration a wasp's nest some six to eight inches in diameter; the top and the bottom combs are the smallest, those adjoining are larger, and the centre comb or combs are largest.

The various groups of wasps, congregated principally under the lowest combs, place themselves there to breathe the purest air and to generate the necessary warmth for the brood in the nest. That warmth is not a negative quality, but possesses positive attributes. It ascends. It has a tendency for concentration

in doing so, and to become absorbed and diminished in intensity as it gets further removed from the body that generates it. It also furnishes facilities for intercourse, for assimilation, or otherwise in the living atoms of matter which it envelops and pervades.

The wasp's nest, like those of the ant and the bee, is a consumer of heat; but it has the power of creating a larger amount than is consumed by itself and its surrounding wall or encasement. This excess flows out by the entrance. The main generator of heat in the nest is the clustering body of wasps occupying the lower portion, whence the warm vapour ascends, permeating every layer of combs, and penetrating, by its upward tendency, into every cell, which it enters in part and leaves in part. It is thus continually renewed, while the grubs absorb from it those qualities which they require; and so the heat, lessening in power as it is further removed from the body generating it, is partly absorbed by the combs which it enters. It then passes on until it reaches the dome-shaped top, around the tiny comb at the summit. The horizontal cakes of comb, the material of which they are made, the vertical cells all pointing downwards, and the circular shape of the nest wall, with entrance near the bottom, are each and all favourable for retarding the too rapid escape of heat, and for economising and utilising it to the very best advantage. The dry ground around the nest, like the thick walls of the hive, also form a good reserve store for heat. But the wasp does something to add to the advantages named above, for it builds hexagon cells, like the bee, and, while economising space, the corners give a free circulation of warm air around the legs and wings of its maturing brood; then the top surface of the nest is not even, but composed of imbricated hollow tiles, where the heat gets imprisoned in an infinite number of diminutive chambers, composed of highly non-conductive material.

(*To be concluded next week.*)

KEEPING QUEENS OUT OF SURPLUS CHAMBERS.

I took this for a topic some time ago, but my experience since then has forced it upon my notice again, and presented it in a way that forces me to accept a queen-excluding honey-board as a necessity in raising extracted honey. I have now a number of supers that I should like to remove for the season, but they are brooded so badly that I cannot take them off, while the brood chamber seems almost deserted. To lift the brooded frames out of the upper storey and put them into the lower would be a painful and difficult operation, and impossible without starting robbing that would be hard to stop. Last fall I found eight or ten colonies in the same condition, and had to let them remain in the second storey throughout the winter.

In raising comb honey I have no difficulty in this way that is serious. A few sections are brooded, and, as the season closes, more have pollen put into the cells, so that I have to remove it with a penknife, and cut the honey out for muss, but there are not enough of brooded and pollenised sections to justify me in using honey-boards, even if I had them ready made. And I doubt whether the most nicely cut zinc honey-board would prevent the workers from carrying pollen into the sections when nectar is scarce and pollen superabundant, as it is here in the late summer and fall.

For years I have been using about twenty slatted honey-boards of the Heddon style, but they seem to do little good except to keep the bees from building combs between the upper and lower frames. I cut a nice gauge strip to nail the slats on by, so as to get them the $\frac{5}{16}$ of an inch apart, but some queens get through, and seem disinclined to go back again. Can any brother bee-keeper who has experimented exhaustively tell me what to do? Authors of works on bee-culture, especially the better and later writers, do not seem to think honey-boards necessary even in producing extracted honey, but their opinions have no weight against a difficulty that is under my eyes. My frames in the upper storey are, as a rule, the same size as those in the lower, but I have used a number of supers with frames about half that depth, and like them better, as I get more honey in less room, and can tier up as high as necessary, leaving the slinging to be done in the fall, after the harvest is over. But I have been as badly bothered with brood in the half frame as in the whole one, and last winter had to leave two on one hive all winter, as stores in the brood chamber were insufficient, and brood was divided in the two half-storeys. I made a lot of these half-storeys last winter, and prepared to experiment with them and honey-boards this summer, but the season prevented the putting of a super on a single new hive, hence I repeat the inquiries of last winter.

This is my greatest difficulty in handling bees, though of course the greatest drawback to bee-keeping here is the drouthiness of our climate. But nothing in manipulation bothers me as much as this, and neither my own experience nor that of others, so far as I have been able to gather it, gives me a clear way out. I have not tried perforated zinc, but those who have done so seem hardly satisfied with it. I have several thousand slats cut for brood frames, with insets to match the sections, but which were cut too narrow, and have thought of utilising these for honey-boards, yet I should have to cut them down very nicely, or put zinc strips over the apertures, to effect the desired purpose.

Now I have two questions for the query column next month, and want not only those to whom questions are sent, but those who contribute to the columns of the *Guide*, and who know whereof they affirm, to say, first: Will the use of perforated zinc strips, or of sheets, keep the queen out of the supers used for extracting? Second: Will the use of perforated zinc strips

or sheets prevent the bees from storing honey in the supers as freely as they would if a Heddon honey-board, or no honey-board at all, should be used?

I know of no more practical questions in general bee-keeping that we have to settle.—WM. CAMM, *Murrayville, Ills., August 10th*, 1890 (in the *Bee-keepers' Guide*).

[We print the above as showing how the question of using queen-excluders stands in America at the present time. In this country, however, the slatted honey-board has never been successful in comparison with the perforated zinc used for the purpose, and the latter is now quite generally used both here and in America. The two questions with which our American friend concludes his observations are now about settled so far as the practice of British bee-keepers will settle them, and we believe the conclusions arrived at by bee-keepers here will be confirmed on the other side of the Atlantic. At all events our answers to the two questions would be: 1. Practically, yes. Perhaps one queen in a thousand may be able to pass through the zinc, but not more. 2. The slight hindrance the excluder forms is more than counterbalanced by other advantages.—EDS.]

Correspondence.

The Editors do not hold themselves responsible for the opinions expressed by correspondents. No notice will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITORS of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements*).

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

EXPERIENCES DURING FORTY YEARS.

[385.] In your *Journal* of September 18th you intimated that you are about to write a series of papers connected with bees and their management. Having been an amateur bee-keeper for the last forty years, and as I am still as much interested in them as ever, I will be glad to give you from time to time an account of my experiences.

I began bee-keeping about the year 1850, under the tutelage of a very old gardener. He had never acted as such till he came to me. He was extremely fond of bees, and though very deaf, he took the lead of the music in the small parish church by means of his flute. He took his dinner in a little tool-house, and the robins came and perched upon his knee. He said the bees never stung him, and though very deaf, he always knew when the bees were dangerous, and, with a kindly smile on his face, desisted as far as he could from his work, returning again when his little friends were in a more amiable temper.

In those days we had no such things as *Bee Journals*, as far as I knew, to guide and instruct us, nor had we the opportunities which we now have of buying the beautiful and inexpensive hives which many bee-appliance dealers now manufacture; but each bee-keeper, if he had a wish to improve upon the old skep, had either to do it himself or employ the village joiner to help him.

The only hive I ever bought ready-made was a Nutt's collateral hive. Perhaps it was through my inexperience, but I never did any good with it, and it has long since, as many of my old hives have, gone into the fire. I have once or twice sold off old bee-materials by auction—not for any profit there was in the operation, but to get rid of them. It brings out the bee-keepers from their shells, and ends in a little friendly talk.

In course of time I found out the necessity of keeping the bees dry and warm. I placed one or two of my hives in a stable loft, and a passage was made from the beehive to the window, so that the bees could get out and in without getting into the room. If they did at any time get in, the window could be taken out altogether, but the passage was so arranged that it remained intact.

At that time I had square wooden boxes, with bars at the top, instead of frames, and a loose lid, and one box could fit on the top of the other. My old gardener having died, I was obliged to take a more personal charge of my bees. Those who thought themselves 'experts' said bees did not sting when swarming unless they got up one's sleeve or down the neck, and then got squeezed. I decided to try this, and a favourable opportunity presented itself. A swarm settled at the top of a lilac-bush. I procured a skep, a step ladder, and a small table to place the skep on when filled with bees. I pulled off my coat, turned up my sleeves, tied a handkerchief round my neck. My man was to get inside the bush in order to shake the branch when I was up the ladder and had the skep under the swarm. I mounted the step ladder, but before I was quite ready down came the swarm, partly into the skep and on to me and my bare arms. I came down a deal faster than I went up, placed the skep on the table, and dashed into a bush, the bees stinging all the time. 'A sadder, but a wiser man,' I never did it again. It took three weeks before I got over it. The queen fortunately tumbled into the skep, and all was right so far as the bees were concerned.

I can now speak from experience in that matter. They will sting when swarming, but perhaps not so readily as at other times.

Why is this? Partly because, when bees are about to swarm, they fill themselves with honey to prepare for the call upon them in making

wax combs and providing for a rainy day, and partly because they are in great excitement at the prospect of going to a new home. All of us are more amiable after a good dinner.

I always now wear a veil and gloves, and if they do nothing else they give me confidence, and I can do my work quieter and with less disturbance to the bees.

And now, Mr. Editor, if you are not tired of my bee-keeping experiences, I will give you a little more by-and-by, and sign myself—A BEE-KEEPER, PAST AND PRESENT, *October 8th*, 1890.

NOTES BY THE WAY.

[386.] I myself have never used flour as a pacifier. When I wish to unite, say, two weak stocks on frames, I simply place the frames alternately with those in the hive I wish to introduce the other colony into—first, bringing the two hives near together—then allowing the hive containing the united colonies to stand midway between the positions previously occupied by the two hives; this job if done in the evening requires no scented syrup or any pacifier, and after extended practice I have not had a single case of slaughter. If any preference is given to either queen, remove the oldest or smallest or inferior one of the two before uniting the two colonies together.

Whenever I have had robbing to suppress I use carbolic acid applied to the entrances and alighting-boards of the hives that are being robbed; then with a fine rose on waterpot I give all the hives that are on the job a shower-bath, and if the first application of pure water does not have the desired effect I give them another sprinkling with water slightly carbolised: this has always quelled any uproar in the apiary, and with over a hundred hives, when they are once on the war-path robbing, it requires prompt measures to put a stop to the *melée*.

Introducing.—I feel I am rather late in the day, or rather season, to say anything on introducing late in October, but when it is in print it will not be lost or forgotten. Well, during the past few years we have had many different ways of introduction delineated in the pages of bee literature, but I have never been allured into giving them a trial, though, possibly, the various systems may attain the desired object. I have still adhered to my old method, which I have found after years of practice to be simple and efficient.

When I wish to introduce a queen to a stock that has a queen, I first open the hive and remove her majesty, then close up the hive, leaving the feed-hole of quilt about the centre of the hive. Now take the queen you wish to introduce and place her in a glass tumbler, confining her with a piece of perforated zinc. Now invert the tumbler with the queen over the feed-hole of hive and wrap up the tumbler with some soft warm material for a few hours till the evening, then after dusk simply draw the piece of perforated zinc from under the glass to give the queen sufficient room to run in and the job is done: leave the glass and zinc till another time when extra quilts or cushions can be given as required. This is my simple method; not a good one for introducing cage-makers I admit, but for efficiency and safety to queens I do not think it can be beaten. Mr. Blow makes a cheap cage for introducing queens on the same principle, *viâ* the feed-hole, and to those who would like to give it a trial I can safely recommend this cage, having examined it at several shows, and heard it favourably commented on by practical bee-men.

Swarm Catchers.—I have found during the past season that 'bavins' placed a few yards away from the hives make first-rate swarm-catchers, with a forked stick driven into the ground to lean them against sloping towards the hives. We had five or six standing about two yards apart at the bottom of the apiary, and in nearly every case swarm after swarm settled on the shady leaning side of the faggot or bavin, giving no trouble to hive them.

Space below Combs in Winter. Is it required?—I think not; in fact, I have never given it, and year after year, as previous volumes testify, when I contributed under the *nom de plume* of 'Woodleigh,' my winter losses have been only a very small percentage, and I may add that many of my hives have fixed floor-boards, making it impossible, except at considerable expense, to adapt an eke or riser. I really cannot see the force of having a deep space under frames in winter. If the bees get an airing it must entail more exertion in the aged and weakly bees to reach the combs when they (the combs) are hanging out of reach except by flight than it does when they are near the bottom board of the hive. This idea of extra space below the frames is akin to the position of frames in the hive, which, I think, has been satisfactorily settled on the lines that if there is any difference between parallel and angular positions of brood combs that *both are best*, and so with space under combs, if the hive is *dry*, the colony *healthy*, and stores abundant, it will not be worth the candle to cavil over the point if the said colony would be better or healthier over one inch of space or over three inches of space below the frames.

Foul brood still appears rampant in many parts of Great Britain, and I should like to see some measures taken to suppress it and stamp it out if possible. I venture to think that county associations should move in the matter, and that a system of compensation should be formulated by which members of associations in poor circumstances who have to destroy their bees infected with foul brood should at least be given another start with clean, new hives and a healthy colony. I can forsee the great risk that a new start in the apiary would run from infection from neighbouring hives in a district where foul brood is known to exist; but if the German Government can enact laws, also the Canadian Government, surely we ought not to be behind those countries in dealing with the

scourge, and the winter months will be an opportune time to ventilate the question in all its bearings and take counsel together how the matter can best be dealt with.—W. WOODLEY, *World's End, Newbury.*

WORKING SURPLUS CHAMBERS.

[387.] I receive so much help from the *Journal*, that if I make a slight improvement in my apiary I feel bound to inform the *Journal* of it. This year, instead of placing a full-sized hive on the family hive, I have used two small ones, 14½ × 8 in. inside measure. This size just takes five frames. I do not use any distance pins. The advantages of the small super are —1. While manipulating the five frames, the bees in the other part of the hive are but little disturbed. 2. Sections can be worked on the hive at the same time, if only one super be used. Of course, the supers are intended to be tired one above another. 3. In early spring room can be more easily given as the bees require it. 4. One super can be worked with the excluder, the other without it, and results can be fairly compared. 5. Weak lots of bees can be wintered in the super on top of family hive and can be made very snug, and the ventilation below is good for them. My experience is that bees always winter well with a hive below the one in which they are. I have tried the small supers on about twenty hives, and am so well satisfied with the result that in future I shall use no other size. My average this year has been 22 lbs. per hive from twenty hives, last year it was 33 lbs. My twenty hives require no feeding, except one hive. My apiary has been greatly improved this year by the erection of a manipulating house 11 × 9 ft., with bee-escape window. I advise all bee-keepers to tilt hives one inch to the front during winter, if on right-angled principle. The difference in April between a tilted and non-tilted hive is astonishing. A splendid leak-stopper for wood feeders is a mixture of propolis and methylated spirits. This 'tip' I obtained from the *Journal*, but only tried it lately.—HIVE.

BEE-GROUND AT THE HEATHER.

[388.] In reference to letter 370, page 476, in *Bee Journal*, *re* the bee-season at Ennerdale, and seeing that you were not aware of an association having a bee-ground, I might just say a word about how it originated. Formerly bee-keepers in this district, during the 'ling' season, had to take their bees to the fell, and hide them in crevices in the rocks or in the fell walls, or any place where they would not be easily found, and even then there was some risk of losing them, for many a hive has been taken away by others, not their rightful owners. In this state of things the idea occurred to a few bee-keepers that it would be a good thing to form themselves into an association, and rent ground and pay a man to watch the hives during the ling season; so it was agreed to rent a piece of ground at the head of Ennerdale Lake, on which they built a wooden hut for the 'watcher,' who stays there for the whole of the six weeks, and receives a weekly wage. This Association was formed in 1885, and is named the 'Ennerdale Bee-Protection Association.' When first started members paid 1*s.* 6*d.* per hive for the season. One remarkable thing —as showing the progress of modern methods of bee-keeping—was that out of 150 hives set down the first season there were only about ten bar-frame hives, all the rest being straw skeps; whereas this season, out of 195 hives, there were only about eight skeps. So you will see we are advancing in the modern system. It has been uphill work getting the association into proper form, owing to bad seasons and not too honest officers; but now it is worked by a strong and able committee, with Mr. Black as president, and Mr. Armstrong, secretary. We have closed this season with 6*l.* to the good, a very creditable balance, and one which speaks well for the management. Members pay 2*s.* for a membership card, which makes them life members, and 1*s.* per hive per season; non-members pay 2*s.* per hive per season. We hope to have a better season next year.

Please say through the *B. J.* if about 1000 acres of ling would provide good forage for 200 hives. By giving your opinion on the above query, you will oblige—A MEMBER.

[Two hundred hives on 1000 acres of forage is five acres for each colony, and this is amply sufficient, we should say. We are very glad to see so satisfactory an arrangement arrived at as is described by our correspondent, and suggest to other bee-keepers in like circumstances that they could not do better than follow the idea set forth above.—EDS.]

A RECORD HONEY YIELD.

[389.] In reply to your editorial note to No. 378 in last week's *B. B. J.*, I send you the particulars of my stocks this season. I wintered thirty-six stocks. In the spring I found one dead, water having got in through a crack in the roof and frozen them; and I also lost two by robbing. Of the remaining thirty-three, two were made into nucleus hives for queen-raising, and eight, whose queens were old, and were not breeding satisfactorily, were united to others. With the remaining twenty-three and seven early swarms in May, all the work of the season was done, twenty-five being worked for extracted honey and five for sections. I returned all the June swarms, but got six late ones in July, which, thanks to the good weather and amount of food about, have been able to get ample stores for the winter. I commenced supering on the 16th May, when all my twenty-three stocks were as strong as possible.—O., *Bury St. Edmunds, October 11th*, 1890.

FLOUR AS A PACIFIER AND OTHER MATTERS.

[390.] I successfully united two stocks of bees on the 8th instant, using flour as above. As I took each frame out of the old hives, I dredged the bees on it with flour, putting the frames alternately from each of the two old hives into the new one. I have seen no signs of fighting since, and I found only one or two dead bees on the ground the next morning.

In uniting the bees, I made no attempt to capture either of the queens, nor did I look for them. There appeared to be no brood in either hive, but at this late season of the year I suppose breeding has ceased. Will you kindly inform me (1) whether it is right that the hive should now contain no brood? I should also be glad to know (2) how many square inches of sealed honey is considered sufficient to carry a stock through the winter? Would seven or eight frames, each having about two inches of sealed honey with a good deal of liquid honey (unsealed) below, be ample? (3) Can you add to a stock driven bees which you might be able to obtain from a *near* neighbour, or would the bees return to seek the old skep from which they had been driven, unless they were carried off beyond the distance to which they are supposed to fly?

[It is always best to take some means of preserving the best queen when 'uniting.' 1. Where stocks have not been fed it is perfectly natural for breeding to have ceased in the middle of October. 2. The actual amount of food, in weight, should be from 18 lbs. to 20 lbs. Eight frames filled as described should contain fully that quantity. 3. Yes. The act of 'driving' and transferring the bees will cause them to remain on the new stand.—Eds.]

FLOUR AS A PACIFIER.

[391.] I notice your correspondent (356) mentions flour as a pacifier in uniting bees, and you wish readers to try same and report. I may say I used flour about seven years ago in uniting driven bees to stocks in bar-frames, first giving a puff of smoke, then sprinkling flour from a dredger or any kind of tin box with holes in the lid, and giving the driven bees in skep a dose at the same time and shooting them in on top of bars, quietly covering up. I have united many lots since in the same way, and never knew it to fail. I united a driven lot to a stock in skep this week with the same result, first giving a puff of smoke before turning up the skep, flouring both lots, tossing the driven ones on top of others, then gently turning right way up.

I have also used Webster's carbolic fumigator as a bee-quieter in uniting and ordinary manipulation; in fact, I have not used a smoker for bar-frames during the last three seasons, and have had about twenty-five hives to look after all the summer. I use thin calico cloths, putting a few drops of carbolic fluid on each time of going round, and find it far before smoke. In uniting with this I first put a cloth over each stock for a few moments; then, either shake the bees off combs in front of the hive, or, if they only occupy a few bars, I put them alternately between the others, covering up with carbolic cloth for a few minutes afterwards, and have never had a mishap. The only time I use a smoker is when 'driving' or 'bumping.'—J. Hounsom, *Leigh, Tunbridge.*

FLOUR AS A PACIFIER.

[392.] When the *Bee Journal* of the 25th September reached me, I had a queenless stock in position, ready to be united to another strong one; and, seeing the account of doing so by the use of flour, mentioned by your correspondent 'A Carluke Amateur' (356), I determined to try his method, and carried out the operation exactly as described, only I 'borrowed the cook's flour dredger,' with perfect success and no trouble. The bees appeared to be altogether taken up with cleaning themselves from the flour, and took no notice whatever of each other. The whole business was completed in a few moments.—John Newton, *Gardener, Rosslare House, Co. Waterford.*

BEES AND MICROSCOPISTS.

[393.] A series of articles, clear and full, showing how an amateur may satisfactorily mount the parts of a bee for the microscope, as suggested in No. 361 last week, would be most acceptable to me, and, I have no doubt, to many others. Hoping we may soon get them —C. Hambrook, *Shenley, Barnet.*

BEES AT THE HEATHER IN DUMBARTONSHIRE.

[394.] As I do not observe any reports from this locality in the *B. B. J.*, I take the liberty of sending my results from the heather, as the harvest of clover honey in this district was nil.

I take my bees over twenty miles by road to the moors, and they have always repaid me pretty well for the trouble, but this year they have surpassed all previous years.

I took six eleven-frame hives and one straw skep on 12th August, but the weather was miserable up to about 5th September, when, just as all hope was beginning to die, and the bloom was past its best, a change came, and for fourteen days the bees worked hard, filling all the supers and cramming every available cell in the brood nest, the net results from the seven hives being 130 lbs. super, and 348 lbs. for the press, which I think is not so bad for a fortnight's work.

The hives were in splendid condition for work, crowded with bees and brood, and without a particle of honey stored when they were taken away.

A great many straw skeps are taken to the same forage-ground, and as a number of us were lifting them on the same day, some of the skeppists were rather 'put out' on seeing the

large twenty-pound supers taken off the frame hives. Perhaps, Mr. Editor, such a sight demonstrated more forcibly to them the advantages of modern bee-keeping over the skep system than unsatisfactory arguments would have done.

Now I am just about to give my hives the finishing touches in the shape of "happing" and making all snug for the long winter months. With best wishes for the success of the *B. B. J.* —SCOTCH HEATHER.

CARNIOLAN BEES.

[395.] Much has been said of late in the columns of the *Bee Journal re* Carniolans and swarming. Allow me to offer my experience. I have kept Carniolans for several years, having first obtained them from friend John Walton, who lives near me. I have tried them alongside of English and Ligurian bees, and treated them just the same, and I have never found them inclined to much swarming—in fact, rather the reverse to that, as this year I have not a single swarm from a Carniolan stock in my apiary of twelve stocks; and at the same time they have gathered double the quantity of honey in sections that any of the others have. They are also very gentle to handle, and defend their stores well against robber-bees. I think some of your correspondents must have their Carniolans crossed with Ligurians as they seem inclined to swarm largely, or perhaps they are of a different strain, which might make a difference to their swarming propensity. Taking them altogether I like them better than any others I have tried yet—and I am no dealer, but only a cottage bee-keeper.—MARK BASKOTT, *Marton, Rugby, October 11th*, 1890.

DESTROYING WASPS.

[396.] I have tried the following method for destroying wasps for several years, and found it to answer well. If you think it would be of use to bee-keepers, I should be glad if you will insert it in the *Journal*.

Dissolve small quantity of brimstone and about one-sixth part of saltpetre over fire; make as many small matches as required; fold the match in brown paper, light one end, and place in ordinary bee-smoker. The fumes can then be blown into entrance of the nest, which must be covered up directly with a sod, when the whole of the wasps in the nest will be entirely destroyed.—LOWTH, *Lincoln*.

THE SEASON IN BEDFORDSHIRE—COLOURED BEE-PLATES.

[397.] I have not yet seen a report from this part of the country. I have not 'beaten the record' of your correspondent at Bury St. Edmunds, but my ten hives have given me 338 pounds of honey (280 of it extracted) and four swarms. My best hive yielded 94 pounds. They are all blacks. June was a wet month here, as elsewhere, but our rainfall is said to be the least in England; and certainly the neighbourhood is a fine one for bees, despite the onion seed. They begin to gather about the middle of March from the fields of wallflowers, but the turnip seed is the great harvest. After that, beans and limes, and the mangel seed feeds them up for the winter.

I think the suggestion for coloured plates of foreign races is a capital idea. It is very seldom one sees pictures of bees—appliances commonly enough. I for one should be very glad to be a subscriber for the plates if you think of carrying out the suggestion.—GAVIN H. SAMSON, *Caldecote Parsonage, Biggleswade, Beds.*

BEE-PAPERS FOR WINTER.

[398.] You invite suggestions as to topics for 'practical bee-papers for winter reading.'

I should like to suggest as one, 'The best method of preventing swarms'—I don't mean as it applies to those with large apiaries and who make it their business to attend to them, but for those who, like myself, have but a few stocks, and who are away from home all but the beginning and end of the day. There must be many in this position, especially in the suburbs of London, who from lack of time do not desire increase, and yet who do not like to lose their swarms.

I have during the past season tried frequent examination and cutting out of queen-cells, but with partial success, besides such frequent disturbance being, I am convinced, bad for the bees. This difficulty is with me the greatest I have had so far.—H. J. SAVORY, *Crouch End, N.*

A CORRECTION.

[399.] I have just read in your issue for the current week Mr. C. N. White's account of his tour in Ireland, and see he has described me as a District Hon. Sec. of the Irish Bee-keepers' Association. This is incorrect. I do not hold any official position in connexion with the Association.

Miss Rutherfoord is District Sec. for Co. Louth, but living as she does at the extreme end of the county, made it 'awkward to assist Mr. White on part of his route, and it was for this reason I was requested to accompany him.—O. HARDY, *Dundalk*.

IRISH BEE-KEEPERS' ASSOCIATION.

The Committee met on the 7th inst., the Rev. R. Seymour in the chair. It was resolved to grant an Expert's Certificate to Mr. Owen Fearon, of Carlingford, in accordance with the recommendation of the Examiner. The Hon. Secretary, Mr. Chenevix, read an interesting report by Mr. C. N. White of the tour undertaken by him in County Louth on behalf of the Association, for the purpose of inspecting hives and giving assistance to bee-keepers. (See page 487.)

Queries and Replies.

[244.] *A Skeppist's Experience with Frame Hives.*—A friend of mine has had quite a lot of varying experiences with his bees in this his first season's trial of frame hives, as well as bad luck among his queens—I dare say more than during his many years as a skeppist. He commenced the season with two strong skeps; one never swarmed at all, the other swarmed twice; the first swarm came off about June 20th and a second came off a week later. Both were housed in frame hives, and, as they did well, his hopes of a decent honey harvest went up, when the bees took into their heads to swarm, and they did about the middle of August. On examining the hive afterwards, we found six queen-cells, all of which were cut out, but one of the young queens had hatched out, though she could not be found. However, we returned the swarm (which was a very strong one), the young queen being killed and thrown out next day. About a month afterwards we discovered this hive to be queenless, so had to introduce another, which we did safely. When the bees in frame hive swarmed in August, my friend fancied that a third swarm also came out of the old skep and had joined with them, but as he did not see them rise there was no certainty about it; but they decreased a great deal about that time. On examining the skep, we found no brood except drones, which were hatching out of worker comb, so we commenced driving them out and found a queen; she was a fine large one, but seemed very long and slender. The cappings of this brood almost touch each other, they are so raised up from surface of the comb. 1. Has the queen failed in getting fertilised, or is the brood that of a fertile worker? 2. If queens don't get mated in a short time after birth, do they never become fertile? I saw a queen fly into this skep about a month after the second swarm came out. 3. Should we unite them to another, or re-queen?—there are about two quarts of bees, and quite enough stores in the hive for winter use. Season here not so bad as 1888, as bees have almost gathered enough to winter on. Honey selling at 1*s.* 6*d.* to 2*s.* per pound here.—Thos. Kendall, *Knittleton.*

Reply.—Are your friend's bees Carniolans or blacks? With ordinary management (and native bees) there is no reason why the first swarm of June 20th should swarm again in August, nor for the disappearance of the queen after the swarm was returned to its hive. Perhaps he has been opening the frame hives too often. He is wrong in his idea that a third warm 'came out' from the skep two months after its first swarm issued. The past season has been remarkable for mishaps to young queens, owing to the bad weather at mating-time. Replying to other queries—1. The queen has failed in mating, and is consequently worthless. 2. If mating is delayed beyond a fortnight, young queens generally become drone-breeders and never produce worker-bees. 3. As the bees have been so long queenless, they will be chiefly old and consequently hardly worth re-queening. Get your friend to manage his frame hives more on the 'let-alone' plan till he thoroughly understands when to open up stocks and when 'not to.'

[245.] *Feeding Driven Bees in Autumn.*—I should feel obliged if you or any of your readers would advise me how best to feed two stocks of bees so late in the year as this. At the end of September I drove two skeps of bees into one bar-frame hive and three into another. Not having any experience, I failed to discover the queen, though I drove the first lot twice over in endeavouring to do so. All, however, seemed, so far as I can judge, to go on well, as there was no fighting in this case. In uniting the three driven lots, however, there was a great deal of fighting, and many bees were killed, but this had quite ceased, and all were quiet and peaceful the next day. I filled three frames with the comb containing honey and brood from the skeps, and placed them in each of the bar-frame hives. I have given these two hives a few pounds (not more than three) of honey, and fifteen pounds of sugar made into syrup, and as the comb returned to them in the frames contained sealed honey in about one-half, I should like to know how much more I ought to give them, and whether it will be best to give it them in the form of syrup or some other form. I have given each hive, besides the filled frames, two empty ones with comb foundation. Am I right in doing this? Any advice will be gratefully received by—Inquirer, *Launceston.*

Reply.—According to your statement each stock has already about twelve or fourteen pounds of syrup in store, so that not much additional food will be required to make up the necessary quantity; but if the bees are still drawing out the foundation they should be continuously fed to keep them working on it until the combs are built. You cannot winter as many as three lots of driven bees on three frames of comb without incurring a heavy winter mortality, and if you could by any means procure a couple of ready-built combs for each hive it would conduce greatly to the chance of safe wintering. Referring to your inquiry for frames, we do not trade in appliances of any kind, but standard-sized frames may be had from any of our advertisers who deal in such things. It would also be an advantage to order the frames to be sent to you in the flat for convenience in transit, and you will require a frame-block to assist in nailing them up square. It is very important that frames be accurately cut and exact to size. Should you decide to have the frames made by an ordinary joiner they would cost considerably more than an appliance manufacturer would charge, besides the risk of inaccurate cutting. Machine-made frames as sold by a regular beehive-maker are in every way preferable.

Echoes from the Hives.

Honey Cott, Weston, Leamington, October 10th.—In my last echo I mentioned about transferring some twenty stocks from some of my old hives with frames, not standard size, and it was a tough job altogether. Of course, what honey they had I took, and I have had to feed up. I have also had to alter what hives I could to the standard size; have got two or three more still to do. Then I have got a dozen or more roofs to make yet. By-the-by, wasps have been very annoying this autumn. When I wanted to get clear of robbers, I have before now opened hives after taking them into my honey-house, but the wasps got in where no bees ever thought of going, and caused me a lot of trouble. —JOHN WALTON.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

THOS. GRIFFITHS (West Bromwich).—Bees sent are from a queen crossed by a black drone. Twenty to twenty-five pounds of syrup will certainly last each stock till next spring. The large insect is a queen-wasp.

G. MELROSE (Ulverston).—The honey sent is of good quality, its colour and consistency being very good indeed. But for its too pronounced 'minty' flavour it would be a first-rate sample.

S. W.—'Burlap' is, as stated in *Gleanings*, a coarse sacking material used in America as a covering for the top bars of frames.

O. P. (Westbury-on-Trym).—In the *Record* for February, and also in that of March last, descriptions are given of how to make a frame hive.

J. S. (Linlithgow).—Honey cannot be 'produced by bees fed from boiled sugar.' Honey is the nectar gathered by bees from flowers; boiled sugar is syrup, and no manipulation by the bee will make it anything else. Bee-keepers, at least, should be in no doubt about this.

J. GLEW (Newark).—The heather sent is the true honey-producing variety. Bear in mind, however, that it must be grown by the acre or the 100 acres before the place can be called a bee-pasture.

J. QUARTERMAIN.—*Buying Second-hand Appliances.*—We cannot undertake to appraise the value of second-hand goods, and unless we could have some assurance that the hives, &c., had never been inhabited by foul-broody stocks, we would hardly advise your buying them at any price. Besides, new bee-goods can now be had so cheap, that second-hand ones are not much sought after unless very cheap indeed. More than this we cannot say.

MR. A. I. ROOT (Medina, Ohio, U.S.A.) forwards the seventieth edition of his illustrated catalogue, which, as usual, is full of information for buyers of bee-goods, besides containing particulars of the numberless things stocked and sold by the editor of *Gleanings*.

LITTLE AH SID.

A LITTLE CHINA BOY'S EXPERIENCE WITH THE AMERICAN HONEY-BEE.

Little Ah Sid
Was a Chinese kid,
A cute little chap, you'd declare;
With eyes full of fun,
And a nose that begun
Right up at the roots of his hair.

Jolly and fat
Was this frolicsome brat,
As he played through the long summer day,
And braided his cue
As his father used to
In Chinaland, far, far away.

Once o'er a lawn
That Ah Sid played on,
A honey-bee flew in the spring.
'Melican buttelfly!'
Said he, with closèd eye;
'Me catchee and pull off um wing.'

Then with his cap
He struck it a rap,—
This innocent honey-bee,—
And put its remains
In the seat of his jeans;
For a pocket there had the Chinee.

Down on the green
Sat the little sardine,
In a style that was strangely demure,
And said, with a grin
That was brimful of sin,
'Me mashee um buttelfly sure.'

Little Ah Sid
Was only a kid:
Nor could you expect him to guess
What kind of a bug
He was holding so snug
In the folds of his loose-fitting dress.

'Ki-ya! ki-yip-ke!'
Ah Sid cried, as he
Rose hurriedly up from that spot.
'Ki-ya! yuk-a-kan!
Shame on Melican man—
Um buttelflies velly much hot.'

San Francisco Wasp.

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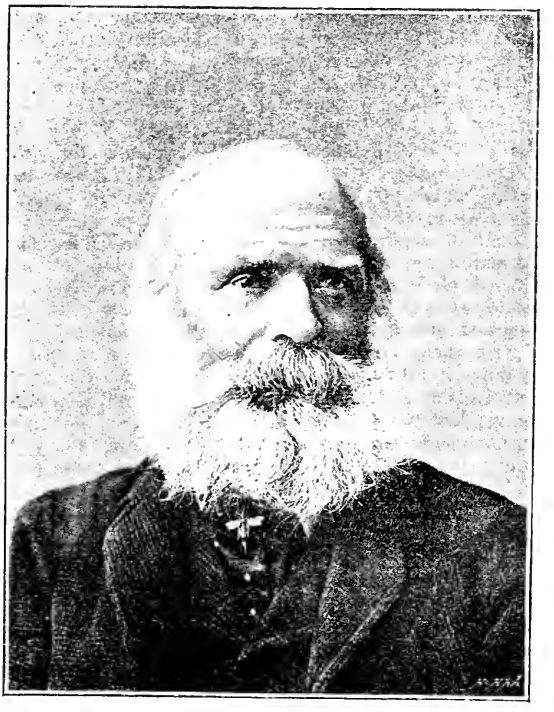
EMINENT BEE-KEEPERS.

No. 27.—JOHN WALTON.

We have much pleasure in giving this week the portrait and a biographical sketch of Mr. John Walton (*bonâ-fide* cottager), who has been a successful cottage bee-keeper, a frequent exhibitor at some of the leading shows, and a regular contributor to this *Journal*.



JOHN WALTON.

The subject of our sketch was born at the village of Ashow, in Warwickshire, on the 10th June, 1831. He went to Stoneleigh School, and at the age of fifteen, when he left, although he had a chance of going to Chelsea College to be trained as a schoolmaster, he preferred following his father's occupation of a carpenter, and was consequently apprenticed to a builder at Kenilworth. A visit to London during the Exhibition in 1851 gave him a desire to work in the metropolis, whither he repaired in 1852, and worked as a joiner till July, 1856. He then left, and on Jan. 1st, 1857, he was appointed carpenter at the Warwickshire Reformatory for Boys at Weston. Up to this time he had not taken much notice of bees, but after a year or two at Weston, on reading during winter evenings some articles in an old edition of the *Encyclopædia Perthensis* he came across a lengthy paragraph on bees and their management, treating more particularly of the methods of the Scottish bee-masters, and how they worked with storifying hives. He became so interested that he thought he would have some bees, but when summer arrived he had forgotten all about them. His wife, however, told him that the village carrier had some swarms, and this brought back to his memory all that he had read, so he decided to at once try and secure a swarm. A bargain was concluded, and Mr. Walton became the possessor of a week-old May swarm for 15*s*. He was too timid to take the bees home, so he got the vendor to bring them and place them in his garden.

He was not very successful with this first venture, for the man from whom he had purchased his bees placed a new swarm on the vacant stand in his garden, with the consequence that many of Mr. Walton's bees returned to their old stand, and were destroyed by these strangers. This weakened the hive, although the bees lived through the winter, and the colony sent off a swarm in the following July.

Mr. Walton's first experience of swarming was to see this swarm return to its own hive, but he caught sight of the queen on the ground a few yards from the hive, and by means of a stick put her at the entrance to her old hive. This was the first time he had ever seen a queen, but had no difficulty in recognising her from the descriptions he had read. In due

course this hive swarmed again, and sent out a 'cast' late in the season. The bees did not get enough to fill the hive, and Mr. Walton knew nothing about methods of feeding, so following the advice of an old fogy bee-keeper, who said that if his bees could not get enough to keep themselves they might die, our friend did the same thing, left them to themselves, with the result that they did die during the winter.

Mr. Walton was not discouraged by this first experience, but was more eager than ever to possess another stock of bees, which he managed to procure at a moderate price, but he spent 5*l.* before he had any honey at all. There was no *B. B. Journal* in those days to teach bee-keepers, and experience had to be paid for, sometimes very dearly. Mr. Walton, however, soon began to succeed. In a year or two he had some fine super honey, in small boxes, worked on the top of skeps prepared for their reception. A market was found for some of these in the neighbouring town of Leamington, at prices varying from 2*s.* to 2*s.* 6*d.* a pound.

Although meeting with many obstacles, Mr. Walton's perseverance was able to overcome them, and he took every opportunity of obtaining information upon his favourite pursuit. He made the acquaintance of an old man who kept bees in a bee-house, and had hives with glass windows. He sometimes put a swarm into a shallow box about four inches deep, having holes in the top, and by this means got nearly all his honey in supers. Any bee-books that Mr. Walton could get hold of were eagerly perused, and much information was derived, particularly from the Rev. J. G. Wood's book on bees, and from Taylor's *Bee-keeper's Manual*.

He was told that he 'messed' too much with his bees to do any good with them. This was true, but experience was gained. Puff-ball was used to stupefy the bees in uniting, and even at this time the brimstone pit had not been entirely discontinued by our advancing bee-keeper.

After a few years Ligurians began to be talked about; but as Messrs. Neighbour asked 5*l.* for a queen, this luxury could not be indulged in by Mr. Walton.

Mr. Abbott's advertisements of Ligurian queens, and his articles in the *English Mechanic*, led to a correspondence, and a subsequent visit to that veteran bee-keeper at Hanwell.

Great was Mr. Walton's astonishment to see Mr. Abbott open a hive, after merely blowing a little smoke into it, then uncovering the frames, lifting them out and finding the queen. This was quite a new experience, which our progressive bee-keeper was not long in putting into practice. The visit ended by the purchase of a Ligurian swarm. During the following winter evenings much information was obtained by reading some of the volumes of the *American Bee Journal* which Mr. Abbott had lent him, and on the announcement that the *British Bee Journal* was about to be started, Mr. Walton was one of its first subscribers. When business took him to London he lost no opportunity of visiting Mr. Abbott or Mr. Neighbour, and through their courtesy obtained many a useful hint.

At the first two Crystal Palace Shows he made the acquaintance of the bee-masters there assembled, and his genial countenance was always welcomed at the shows which he attended, and at which he was always willing to give a helping hand. His honey was generally of a good quality and neatly got up, and was awarded first prize in Class 14 for best super at the Alexandra Palace, and third prize in Class 17 for sections, the first section class open for competition in England. He was the inventor of a neat honey extractor driven by a wheel and strap, which was also awarded a prize. He also received first prize medals for bee-driving, and various other prizes for honey at the Horticultural Gardens Show. Although he does not consider a veil indispensable, he still prefers its use when working amongst his now numerous colonies. He makes all his own hives, racks, and appliances in his spare time during winter evenings, manipulations in summer taking all the leisure time at his command.

Mr. Walton is proficient in his business, and under his superintendence the whole of the carpenters' work connected with the repairs of the ancient church of Weston was carried out by the boys at the Reformatory Institution. This consisted of an entire new roof, and rearranging and repairing the seats, ornamenting them with the old oak carving found in the church, rendering the fabric, such as a Christian place of worship should be, decent and respectable.

Mr. Walton has been a member of the British Bee-keepers' Association from the commencement, and a few years ago, when the Association Library was being formed, he generously presented Vol. 1 of *B. B. J.*, which was out of print and very scarce at that time.

He states that, after eighteen years' experience of foreign races, he gives the preference for tractability and honey-producing powers to Carniolans, and these crossed with English, in his experience of late years, Ligurians being much inferior to the others in both these respects. Mr. Walton is a good example of what a *bonâ-fide* cottager may do with perseverance, and his success should stimulate others to try and do likewise. We know he has given his experience freely, both as a contributor to these columns and in personal interviews, and hope he may long be spared to follow his favourite pursuit.

USEFUL HINTS.

Weather.—A thorough break-up of the weather seems to have occurred in all parts of the kingdom, so that all comfort while putting bees in order is at an end. Happy bee-keepers who, having taken time by the forelock, can look around and complacently defy the rain and cold, and all the rest of

the inconveniences attendant on 'hints' neglected and work left undone! The weather has been all that a bee-man could desire for some weeks past until just now; bees have taken food well, and where given rapidly in warm and snug hives it has been well sealed over, so that, except where want of knowledge on the part of the bee-keeper has impeded the bees in their portion of the work, it may be safely said that stocks will this season go into winter quarters in excellent condition. Plenty of food has been stored in brood nests since breeding fell off, where a natural supply was available, and in late or heather districts we learn that body-boxes have been found full of sealed food when the bees would not look at surplus chambers. Wise bees! to look after themselves in this cunning fashion—unless our good friend, Mr. Grimshaw, can find some 'development' to prove us *wrong again*—anyway, *we* know that heather honey stored in tough brood combs is safe from the extractor (not 'X-tractor'), and so bees returned from the heather are well supplied with food in the best condition, for which happy condition of things the writer says 'thanks!' as removing the source of many a query very difficult to reply to satisfactorily.

Flour as a Pacifier.—This has become quite a familiar heading in our correspondence column—none too often we hope, as a good thing bears repeating—and along with instances of its extreme usefulness to bee-keepers comes the inevitable news that there is no novelty at all about it; indeed, our correspondent who reported its use twenty years ago is now quite snuffed out by another, who writes of its being fifty years since his father was first made acquainted with the flour 'dodge.' What most concerns us, however, is the gratifying reports of the uniform success of the new (old) plan of quieting, and it may be safely said that quarrelsome bees will in the future get their jackets well dusted whenever they show a disposition to fight. A more simple and easily applied remedy for overcoming what has been a frequent source of trouble could not well be imagined, and it is a distinct step forward for all bee-keepers to have it within reach; all disputing as to who originated it may therefore be quietly exchanged for a vote of thanks to the gentleman whose timely word has given it such prominence.

(We reserve some further 'Hints' till next week.)

THE SCIENCE OF BEE-KEEPING.

Heat: Its Economy and Dispensation.

(*Continued from p.* 497.)

Heat.—We shall now consider the action of heat in the hive, taking for our purpose a frame hive with the frames at right angles to the entrance. Bees commence by rearing their brood in the fore part of the frames, near the entrance, and gradually extend it towards the sides and back. The brood is also extended in height above the cluster in proportion as the outside atmosphere and the income of nectar and pollen are favourable for so doing.

The warm vapour on leaving the cluster ascends rather rapidly, and in ascending it has another action, that of concentration or concentric cohesion, as it diminishes in intensity and becomes further removed from the body which generates it. But by virtue of its motion it spreads itself under the whole surface of the quilt, the greater portion then joining the outcurrent, and flowing towards the front wall of the hive, descending along its inner side, and making its exit by the upper side of the entrance.

The bee-cluster being a great consumer of oxygen, fresh air enters by the lower side of the entrance and extends itself under the cluster. A portion of the fresh air, however, passes up the sides, chiefly by the back of the nest.

In early spring, when the cluster is still a certain distance above the floor-board, and the brood nest is increasing daily, a portion of the vapour radiating downwards under the cluster condenses, and produces the moisture so often seen at the entrance to a prosperous colony at that season. It is then an advantage to have the floor-board a little inclined forward, that the water may run out by the entrance. Immediately the cluster reaches the lower part of the frames the floor-board becomes perfectly dry, and so does the entrance, because the front outgoing current passes it before condensation takes place. With colonies in Carr frames the entrance is only found wet for a few mornings; with those in Standard frames it is advantageous to confine the bees to such frames only as they can well cover, until the bees are seen near the lower part of the frames.

Combs.—In a wasps' nest, it will be observed there is one kind of cell only, that for brood-rearing, and none for storage; also that these brood-rearing cells point mouth downwards. Bees also construct, in certain seasons, one kind of cell—queen-cells—*likewise with the entrance or mouth pointing downwards*, and standing out rather as single, or separate, cells. Special and varied precautions are also taken in order that these cells and their inmates may receive the full benefit of the ascending heat, in which they are enveloped.

As is well known, bees also construct other cells, worker and drone, both of which are used for storing honey or pollen, as well as for rearing brood. Had these cells been used for storage only, we would have expected to find

them pointing upwards vertically, or nearly so. But as they are formed with a prospect of containing brood as well, they are built in the best position for brood-rearing, while inclined upwards sufficiently to contain newly gathered honey. We find, accordingly, that the cells near the top of brood frames, and more especially near the corners, have this same upward inclination in a greater degree than brood cells proper. The same is seen in very thick combs built away from the brood nest, and meant for storage only.

When nectar is deposited in the cells, the watery portion rises gradually to the surface, whence it evaporates. Bees place an almost flat capping of wax over each cell, thus presenting the least area of surface for the entrance of moisture which honey is liable to absorb after being ripened.

I have mentioned at the beginning of this article that progeny inherits the immaterial qualities of its ancestors, and we find that the descendants of bees from warm climates use a very thin capping, and leave little or no air-space between the capping and the honey. This is due to the fact that in the countries whence these bees have been derived there is no cold moisture prevalent and liable to re-enter the honey. On the other hand, our native variety shows little inclination to seal their honey at the commencement of the season, when they have warm dry weather before them; while in late summer they place a much thicker capping over it than they do earlier on, having then in prospect the cold moisture prevailing during the winter months. Thus we see that while these admirable insects seem to be sensible of every minute detail, many small peculiarities are inherited from their progenitors.

If we take up a frame of comb, it will be observed that the bees build the cells with two perpendicular sides; each cell has therefore a corner at the top and one at the bottom, to allow the circulation of warm air around the pupa. Were the cells round, the sagging of new comb in warm weather would tend to make the cells oval in shape, and each one greater in height than in width; but where neither sagging nor pressure can take place, bees build their cells six-cornered, and dispose one corner up and the other down. The subject of the circulation and dispensation of warm air in the cell points out to us the principal reason why bees build their cells thus; a reason which seems so far to have escaped the notice of previous writers.

Young bees in the larval state are great consumers of heat; but when the pupa condition is reached, although the developing insect then especially requires great warmth to enable it to develop the outer appendages of the body, they possess as pupæ a function of great importance, *i.e.*, that of *generating heat*. This enables the pupæ to establish a permanent circulation of warm air in each closed-up cell.

I have already explained how in various animals heat is diffused to the offspring from the body of the parent, and that it is given off most readily from the under part of the abdomen; for which purpose bees place themselves back downwards, when they require a profuse escape of warmth for their brood, just above. They likewise place themselves in as many as three or four close-packed layers, every one with its little furnace turned toward the wax sheets, in order that the heat arising therefrom may warm these, while they are drawn out into comb. Many animals, bees included, are so constituted as to walk or fly with that part of the abdomen turned downwards, for the purpose, among other things, of economising heat for the body itself.

These considerations being given, we shall now make use of them, as we examine the circulation of warm air in the cells.

At any time when convenient, take up a frame containing sealed worker-brood approaching maturity; then mark the comb horizontally above a row of sealed cells with a penknife; next break the comb across the line so made, and you will reveal a whole row of pupæ lying on their backs, or back downwards. We shall now understand this position of the pupæ in the cells.

The exhalations from the pupa flow outwards over its own body from the inner end of the cell, and thus draw in fresh warm air through the vacant space beneath the pupa. The fresh air enters at the lower part of the capping, while the air issuing from the cell passes through the upper part of the capping. For this purpose, and to give a larger surface, the capping is made slightly convex; the entering as well as the outgoing air thus meeting the capping at a better angle for penetration.

Following up the same reasoning, we observe further that the air entering, as well as that leaving a cell, may be interfered with only in the least degree by that of the cells adjoining; that no cell can possibly have another *exactly* above or below it, but that instead it has a mid-wall separating the two cells above, as well as one separating the two below. Indeed, the most perfect form seems to be provided here by an All-seeing Eye, not only for the admission of fresh air and its circulation, but also that each pupa may not be compelled to breathe the air previously used by another. It is for the same reason, also, that the faces of the brood combs are, in a great measure, occupied only by the nurse-bees, who are thus free from obstruction while attending to the requirements of the cell-occupants.

As worker-bees are more oval in shape than drones, the latter being almost circular, the air-space under and above the developing pupæ of workers is rather greater than that around drones. The capping of drone-brood is also far more convex than that for workers, representing somewhat the circular shape of its inmate, to admit of a more rapid circulation of air, and to give the burly drone extra facilities for breathing.

*** *We are compelled to hold over the conclusion of the above till next week.*—Eds.

Correspondence.

The Editors do not hold themselves responsible for the opinions expressed by correspondents. No notice will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITORS of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see* 1*st page of Advertisements.)*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

THE DEPOSIT SYSTEM OF PAYMENT.

[400.] I think, Mr. Editor, you are doing the bee-keeping industry a great service by instituting some sort of protection to the bee-keeper in disposing of his produce, for I will venture to say that more harm has been done by unprincipled dealers in honey than by all the bad seasons. There has always seemed to me to exist among bee-keepers a certain clannish feeling, and I must confess to having maintained that bee-keepers as a class were honest and straightforward people; but I have found to my cost that this opinion must be very much qualified, when we find persons posing as philanthropists, and by this means obtaining the produce of the poor bee-keepers' apiary, for which there has been no intention of paying. I say it is time that something should be done to prevent these philanthropic wolves from doing further injury.

It has often seemed to me that the *Bee Journal* might do more to assist bee-keepers to dispose of their produce, and I think that the new departure with regard to deposits would be a favourable opportunity to make a suggestion with that object in view, viz., that following the permanent notice, *re* deposit, you should for a small charge, say *3d.* per week, publish a list of names and addresses of those who have honey, wax, &c., to dispose of; of course this would not admit of any detailed description, but would simply announce to the dealer where he can apply: this, with the deposit system, would, I feel sure, prove of great service to the honey producer, and I would earnestly impress upon my brother bee-keepers that in dealing with unknown customers to insist upon cash, satisfactory reference, or the deposit system.—A. D. WOODLEY, *Donnington Road, Reading, October 20th*, 1890.

FLOUR AS A PACIFIER.

[401.] Being rather busy for some time past I have fallen behind in my perusal of the *B.B.J.*, and it was only the other night that I took in hand No. 431 for September 25th, and observed 'Uniting Stocks—Flour as a Pacifier,' and signed 'A Carluke Amateur,' who certainly deserves all the credit and thanks of the bee-keeping community for first bringing it before them through your valuable paper.

Reproaching myself as I now do for not having given publicity to it long ago, I will make amends for it as far as possible in giving a little of my experience.

I have used it constantly for seven or eight years—possibly more, certainly not less. I am not the originator; it falls to another man in our county, when he had little more than commenced bee-keeping. In trying for the first time to unite two stocks in a rude way of his own, to his utter dismay a fierce battle commenced and raged furiously, till he feared both colonies would be lost. The thought struck him 'What can I throw amongst them to quell the strife?' Curiously enough, though wholly ignorant of its properties in this case, he decided on flour, and administered a copious dusting, which, as he declared, 'wrought like magic'—fighting ceased and work commenced. I was told the story in jest by another bee-keeper, but took notes, and did not fail to operate with it the very first opportunity, and found it all that could be desired. It is now quite a common thing in use in our neighbourhood.

I have used it in every way possible in uniting swarms all these years, and in every case with as much confidence of success as I have done with direct queen-introduction ever since Mr. Simmins gave us that valuable legacy.

In uniting the bees of two straw hives, drive the bees from the one into an empty hive, dust well with the flour (I use a dredger or a large pepper-box), give the other hive a blast of smoke into the entrance, and a sharp stroke or two with the hand to each side of the hive to inform them that you mean business; promptly turn it on to its crown, dust with the flour on and between the combs, place on an 'eke' deep enough to receive the bees to be added; take the driven swarm, hold the skep right above, and with one sharp stroke on the top with the hand down go the bees below; dust again with the flour, replace on the floor-board. If you have used the 'open-driving' method, place the hive on the old stand for ten minutes to collect the flying bees, then back to its own stand, and the work is complete.

With frame hives the work can be more effectively done, as 'Carluke Amateur' has explained. Another way, equally simple:—Uncover your hive, place an empty hive on the top, throw down the bees, apply the flour, and drive them down among the frames by applying a little smoke.

If the bees to be united are already on frames, they have just to be dusted and put into the hive. In this way one, two, three or more frames can be added as may be required to bring up the hive to sufficient strength at any season of the year without the slightest danger of any lives being sacrificed. Every bee-keeper should give it a trial, and so prove that flour is really a *pacifier*. I might just add that I invariably

use *pea-flour*, not wheaten flour; though either will suffice, the effect is more marked in using the former.—CHARLES CARNEGIE, *Mary Kirk, Kincardineshire, N.B.*

[No doubt our correspondent will learn with some surprise, from the reports in our pages, that flour has been used for the purpose of pacifying bees twenty, and in one case fifty years ago. We are, however, very pleased to know that the publicity now given to its use will benefit bee-keeping to a large extent, as no failures have been reported.—EDS.]

THE FLOUR 'DODGE.'

[402.] In accordance with your suggestion, I tried the 'flour dodge;' although it can hardly be called a fair trial, as owing to the foundation on which the driven bees were put being of bad quality it broke down before it was fully drawn out and stored; consequently bees, combs, &c., were in a mess at the bottom of the hive. I therefore thought it the safest way to put an excluding honey-board underneath the bees, and, after placing them on the top of the second swarm to which they were to be united for twenty-four hours, I withdrew the board and then took out some of the *débris*, so as to shake the flour down amongst the bottom lot as well as the top.

I made them all as dusty and white as millers, and then cleared out everything from the top box, brushing the bees off with a goose-wing, and, with a little smoking, they all settled down comfortably without any fighting whatever.

I feel satisfied that under ordinary conditions it would be a complete success.—T. HOSEGOOD.

FLOUR AS A PACIFIER.

[403.] Having read several letters written upon flour as a pacifier in the *B. B. J.*, may I say I have used it in several cases in uniting, and never found it to fail. My father was taught to use it by his grandmother more than fifty years ago. He always used it in uniting swarms when two or more came out on the same day, and never in one instance knew it to fail. He used to say, 'How should they know one from the other when they are all millers?' I cannot see any great importance in having coloured plates of various types of bees, as your correspondent (380, p. 485) suggests. I think enough information can be obtained by reading the ordinary description of each kind of bee as they would be given in type. Readers could see the thing as well that way as the other, and the expense would be very small by comparison. I am sure, Mr. Editor, all bee-keepers must be pleased to see you are willing to help in the deposit system. I look upon it as a great boon to bee-keepers, and I think all readers of the *B. B. J.* ought to avail themselves of this opportunity, also in ordering bee-appliances, as your correspondent suggests (374, p. 484) then we may feel safe, which I am sure I never have done, because I have been bitten. The honey season has not been a total failure here; bees have stored enough food to winter on. I have taken a few pounds of honey, but not so much this year from six hives as I did from two last year. However I will not grumble, but—BE THANKFUL, *Norfolk.*

FLOUR AS A PACIFIER.

[404.] On Wednesday, the 8th October, I united two lots of bees, a swarm of June 15th to a stock that had dwindled down somewhat. I spread the seven frames of stock hive as wide apart as possible, and dusted them well with flour from an ordinary dredger. A brother bee-keeper (who had come to see the fun) then carried the frames from hive containing swarm a distance of about six feet, and held each one over the open hive while I dusted the bees on both sides of frames, and then swept them down amongst the others. When all were in, and white as millers, I closed up frames, and put feeder on. Not knowing what might happen I took the precaution to have my carbolised spray diffuser in readiness, but had no occasion to use it. Time taken about five minutes, and result of fighting, &c., not more than twenty dead. Have watched this move closely, I am satisfied that it is a complete success, as the bees have fed rapidly, and to-day I have noticed pollen going in in fine style.

1. Do you think the flour dodge can be overdone to injury or inconvenience of bees? I used from three to four ounces, which looked a lot about inside of hive. 2. Kindly state variety of enclosed bees (very warm-tempered lot), result of driving expedition.—ARTHUR LANG, *Cleredon, Somerset.*

[1. Of course it is possible to overdo the flouring 'dodge,' but no harm will result from what may be called a liberal dusting. So long as the flour is dry the bees will soon clear themselves of it. 2. Bees are a second or a third-cross hybrids.—EDS.]

FLOUR AS A PACIFIER.

[405.] While our bee-keeping friends are experimenting with the value of flour for 'uniting,' I should like to mention another article which I recommended for years for this purpose, viz., pea-flour or brose-meal. On one occasion I had some difficulty with a queenless stock; eventually a queen reached me with a couple of pounds of bees, per parcel post, but, unfortunately, in the last stages of suffocation. Spraying would have been cruelty under the circumstances, but the pea-flour dusted over the wet bees changed matters at once. The frames of the queenless stock were lifted out and dusted one by one; the queen and strangers shaken into the hive and the frames returned, and in a few minutes all were happy and contented. The pea-flour was gathered up most carefully, and seemed to have been freely used as a substitute for pollen.—EBENEZER MCNALLY, *Harrington.*

[We suppose it will make little difference whether pea-flour or wheat-flour be used; both are of equal fineness.—EDS.]

APICULTURAL ITEMS.

[406.] *Coloured Plates of the Various Races of Bees.*—On page 485, No. 380, 'R.' wishes for coloured plates of certain representative races of bees given *life-size*. In my opinion the work, if done at all, should be ten times 'life-size,' if it is wished to have clearly shown the various points peculiar to each race. Then, to be complete, should we not have plates of all the various crosses, illustrations of how the blood of each race shows itself when intermixed? Such a work would surely be a great 'picture-book;' but who will pay the price it would cost? If only a *sample* of any race is wished for, such can almost always be had for the price of the postage from any one who deals in them. What the practical bee-keeper wants is to be able to say with certainty how his queens have mated. I think an explanation describing the various kinds, with living samples, and how the points show themselves in the hybrids—also shown with live samples—would be far more instructive and valuable, and could be made up as wanted.

Curing Foul Brood in New Zealand.—The letter of Mr. T. G. Brickell (No. 381, p. 486) is very interesting and valuable; interesting as another form of the 'purgatorial' process, which is the only one by which, in my opinion, this disease has ever been really *cured*, and valuable as showing that it is the only plan that will *pay* to carry out. If all bee-keepers on finding the bees diseased, would melt the wax out of the combs and start the bees afresh, and leave the various scientific 'cures' to scientific investigators, foul brood would soon cease to have any terrors. In these days of cheap foundation a comb is worth nearly as much melted down as when fresh built, so that what can be possibly gained by saving them is not worth the trouble. Foul brood was *once* rampant in my district, but it is now practically stamped out, simply by our bee-keepers melting the combs and baking or boiling hives, frames, and quilts. The bees are never starved or confined, and the disease never apppears again till the stock is infected from some other diseased hive.

If Mr. Brickell would follow the above plan, and let the bees be working in an empty hive on the old stand for three or four days while he was carrying it out, and then hive them into the cleaned hive, he would have no further outbreak.

He also touches on the necessity for the novice being able to detect it in its 'first stages,' so called. Among the many signs or indications of foul brood we read of, there is one I have never seen mentioned which in my opinion is infallible, and it is this:—In the 'early stage' the disease causes brood to look like a mixture of coffee and milk—healthy brood being milk-white—and while in this condition it is neither 'ropy' nor infectious, as the *bacilli* are only *growing* in the juices of the larvæ, and have not ripe spores to throw off. It gradually develops, as if more coffee and less milk was added, until the 'ropy' or 'elastic' stage is reached. Now, as sure as a single larva can be found presenting this coffee-coloured appearance, so surely is foul brood present, and steps should be taken to stamp it out. Chilled brood either retains its shape or has reached the pupa stage, or it is black or dark-coloured, never brown or coffee-coloured. If the disease can be detected in its *earliest stage*, the affected larvæ may be washed out with raw carbolic acid by means of a brush or feather, when nothing more will be seen of it.

I do not attach much value to Mr. Brickell's instruction to detect it by means of 'a cell here and there on a comb sealed, when the remainder are empty or filled with eggs and unsealed larvæ.' I invariably open such cells, even if the capping *looks all right:* but when the larvæ in a comb are just being sealed, many caps will be seen with a small hole in them. Here and there will be seen a cell not quite sealed over, and such cells present a very striking resemblance to foul brood. There is nothing like a 'sharp look-out' and acting on the principle of the 'stitch in time,' for I am satisfied there is not a district in the whole of this country free from foul brood.

Punic Bees.—According to your contemporary, the *Journal of Horticulture*, a writer therein has been putting the merits of these bees to a severe test, and they have come through most favourably. A good number of these quees (as virgins) were sent into Scotland, and must have given great satisfaction at the heather, as many parties who had them are writing for more, and orders have been at once placed for next season. This year I divided one stock in June into twelve nuclei, giving each a virgin queen, each of which has built up into a full stock without feeding, and got over twenty pounds of store for winter; but I will leave others a chance now to tell of their merits.—A Hallamshire Bee-Keeper.

[Our correspondent somehow has the unfortunate habit of differing from 'most folks' on most subjects, and the awkward part is that he generally assumes or implies that every one who differs from him is wrong, while he is right. We are quite willing to give full consideration to his views, but they are only *his* views after all, and he should in common fairness remember this when writing. Our view as to the markings and colouring of bees, clearly defining the cross from which they proceed, is that it 'passes the wit of man' ('A Hallamshire Bee-keeper' included) to tell with certainty the *exact* combination or cross which has produced the markings on specimens of hybrid bees, and to say that specimens 'made up as wanted' may be had from dealers or breeders for the price of a stamp is altogether misleading. If we publish the coloured plates at all, the bees will be drawn life-size, and specimens of each *pure race* only shown.—Eds.]

A SWARM OF BEES IN OCTOBER.

[407.] A small swarm of bees passed over Mundham Vicarage on Tuesday, the 14th inst. They settled on a high tree in the lawn, but did not cluster and flew up in two or three minutes.—G. Fairs, *Mundham, Chichester, Oct. 18th.*

BEE-PAPERS FOR WINTER.

[408.] I also, with 'R., South Beddington' (No. 380), was pleased to see it announced that bee-keepers are to be interested with special readings for some of the long winter evenings which are coming upon us, and would suggest that a paper upon 'Insect Fertilisation of Flowers' would be most useful, as most bee-keepers are persons living where the flowers grow, and very few of the cottage class know anything about it. As to 'R.'s' suggestion of coloured plates of the varieties of bees, I think it would be most useful. I have been helped considerably by having the coloured diagrams from the B.B.K.A. Should the B.B.K.A. decide to act on 'R.'s' suggestion, may I further suggest that they have this in view, that the plate or plates issued should be suitable for hanging in schools, with brief description and information attached to each race. In this you would catch the rising generation.—J. B., *Polyphant, Launceston.*

[We should perhaps explain to our correspondent that the B.B.K.A. are in no way connected with the suggested issue of coloured plates in our columns. Moreover, large diagrams, suitable for hanging in schools, are out of the question. We could on no account go beyond the size proposed, *i.e.*, same as that of *B.J.*—Eds.]

CHALLENGING!

[409.] I beg to state that I accepted the first printed challenge by Mr. J. D. McNally, Laurencetown, notwithstanding the statement he makes to the opposite in his second challenge in your last issue. Although there were no conditions regarding the choice of judges in the printed challenge, Mr. J. D. McN. persisted in having a judge of his own choosing; and when (as the challenged person) I naturally thought I was within my right to name one, he would not listen to my choice in the matter of judges at all. I am still willing to meet him with Mr. Howard, of Holme, Peterborough, as judge. I know nothing about him except that he (Mr. H.) judged the Castle Douglas Show in a most satisfactory manner. Mr. J. D. McN., if he will persist in this chanticleering form of challenging will either have to *print* his conditions or give a mite of justice and fair-play to any one who replies to his invitation to 'tread on the tail of his coat.'—Walter Rae, *Dalbeattie, N.B.*

[On referring to the letter (No. 352) of Mr. McNally on p. 450 of *B. J.*, and to some correspondence in our possession which has passed between the parties, we must say that our correspondent, Mr. Rae, cannot fairly be said to have 'accepted the first printed challenge' published in our columns. Mr. Rae says (we quote from a letter of his before us): 'I consider it would be a *bad* precedent for future shows if I were to accept your challenge and proceed as you propose.' He then goes on to say, 'But if you are anxious to have the thing fairly tested you can easily send a pot of run honey to Mr. Howard (the judge at Castle Douglas) who has a jar of my first-prize run honey in his possession. If you care to do this you can write and tell him what I suggest. I have no objection to Mr. Howard's result being published,' &c.

The above will place the facts fairly before those who are interested, and our correspondent will perhaps pardon us for saying that his insisting on having the matter decided by a gentleman who, however able and honourable, has already given first prize to the test jar of honey on *his* side, is just a little unreasonable. We hope, however, that the gentlemen will shake hands and leave the matter of whose honey is best to be settled by 'showing' again next year on the same staging. Mr. McNally has since enlarged his challenge by offering to stage his honey against the United Kingdom. This offer has been accepted, and we hope to make known the result shortly.—Eds.]

UNITING.

[410.] I see in the *Journal* it is recommended to use perforated zinc between stocks before uniting them, and it is called a 'new method. I believe it was advocated in the *B. B. J.* many years since. I know I have used it successfully seven or eight years since between skeps and frame hives. However, my object in writing is to recommend a plan for uniting queenless stocks.

It is well known that you can unite a swarm to any stock without scenting, &c., if done in the middle of the day, when bees are working; so, having two queenless stocks this autumn which had been brought up close to other stocks, I waited for a fine day, and removed the queenless hives twenty yards away, and simply took out the combs and shook the bees on to the gravel walk, when they immediately joined themselves to the hives they had been near without the loss of a single bee. Of course, being queenless, there was no brood, and all were old bees, able to fly well.

I have only tried these two cases, but they were quite successful, and, of course, gave the minimum of trouble.—Arthur J. H. Wood, *Bellwood, Ripon, October 18th.*

[It may, indeed, be truly said of bee-work there is nothing new under the sun, and in this connexion it may, perhaps, surprise our esteemed correspondent to know that we have personally followed the very 'plan' described above several years ago. Practical bee-men do hit on numerous devices just suitable to the circumstances under which they find themselves, and, knowing what to avoid, seldom make mistakes.—Eds.]

PUNIC BEES.

[411.] For the benefit of readers, myself among the rest, would you kindly ask for results respecting Punic bees? Of course the present season has not been very favourable towards a heavy honey harvest; still, it is probable some of your readers who have tried the 'Punics' can form a pretty good idea of their merits. We have been pretty well posted respecting the merits of Ligurians, Carniolans, Cyprians, &c., not the least of the latter's merits

(if I remember rightly) being that they worked by moonlight! Visions of supers filling by night and by day floated before one's eyes, and of course the end of it all was I had to speculate. To my sorrow I found there was a good sprinkling of *moonshine* about the whole business, and gave them up as being totally unfit for the production of comb honey, our principal requirement in this neighbourhood. I am now seriously considering the Punic bee, and will be thankful for the opinions of some of your readers who have tried them.—J. Luck.

[Our correspondent will find some particulars regarding Punic bees on p. 511.—Eds.]

THE FRUIT EXHIBITION.

[412.] The fruit exhibition at the Guildhall, London, on the 6th to 8th inst., was a marked success, but I regret that there were no exhibits of honey allowed. Our worthy President, the Baroness Burdett-Coutts, honoured the show with her presence, and I sincerely hope that her Ladyship's influence may be brought to bear with the Worshipful Company of Fruiterers in order that at the next exhibition a grand display of honey may be seen and admired, which would give a great impetus to the sale of cottagers' and other bee-keepers' productions. I think, Mr. Editor, that honey may fairly be classed with jams and preserves, and would have come under Section 9 exhibit.—A Member, Essex B.K.A.

AN INTERESTING BEE EXHIBITION.

On Thursday, the 16th inst., at the Albert Institute, Windsor, the Windsor and Eton Scientific Society held their winter session *soirée*, in which the Windsor Branch of the Berks B.K.A. were invited to take part. The Secretary (Mr. W. S. Darby) secured the assistance of Messrs. G. P. Cartland, G. Stoneham, A. H. Augur, R. Wood, and their expert, Mr. W. B. Webster, who gave short lectures, aided by a micro-lantern lent by Messrs. Watson & Sons, of London, on the anatomy of the bee, every part being clearly illustrated and ably described. Also pictures in the science of botany. Mr. Wood, chemist, a member of both the Scientific and Bee Societies, had two microscopes, with which he exhibited various pollens, seeds, &c., pertaining to the bee-world. Mr. Webster showed, with other appliances, a case for transporting bees to the Colonies, one being ready packed with queen and a few worker bees destined for Natal; also a prize super-clearer, specimens of comb-building in various stages, and many modern appliances in bee-keeping. Mr. Augur also showed some bee-keeping appliances. Mr. G. P. Cartland's prize observatory hive, with an excellent stock of bees with their queen, deeply interested the spectators. Mr. W. S. Darby showed an invention, which has gained some ten prizes during the last year, by Mr. Louth, of Lincoln, for extracting honey from sections without destroying the combs, with samples of prize honey obtained by the machine. Altogether, the *soirée* was an immense success, and visited by a large number of persons; and to the uninitiated the manner of work, habits, and the anatomy of the bees was most interesting to old and young. The Windsor bee-keepers are to be congratulated upon so successful an exhibition as an addendum to such a valuable and educational society. We commend heartily to bee societies the good example here set in keeping together through the winter months the interest of bee-keeping by holding social meetings. Besides, there are in many parts of the country annual *soirées* held by learned and scientific societies, at which such an exhibition as the above would be welcomed as a novel and interesting adjunct.

Queries and Replies.

[246.] *Wintering on Unsealed Stores.*—1. I have three hives containing ample stores for the winter, but the greater part of the food is unsealed. The cells all over the comb are about half filled with honey. Cowan's *Guide-book* says, 'Extract all unsealed honey.' If I were to extract it there would not be sufficient sealed honey to carry the bees through the winter, and I have at present no extractor. Will you kindly advise me what to do? I intend getting an extractor for next season, and if necessary would order it at once. I have packed the hives for the winter; two on eight frames, one on seven. 2. I have some surplus combs containing a small quantity of unsealed honey; will it keep in the combs through the winter? 3. Are the improvements of the 35*s.* extractors worth the extra 14*s.*, or would one at 21*s.* answer practical purposes equally as well? 4. Is sugar enclosed good for bee-food? It is cane sugar from Natal.—H. C. Hawker, *Hants.*

Reply. — 1. Under the circumstances it would be unwise to extract the unsealed honey; better winter on it than leave the bees insufficient food to carry them over till spring. 2. The honey in surplus combs will probably granulate during the winter if left in the combs; it should be extracted. 3. Of course the dearer machine has advantages, such as taking four combs against the others' two; but a 21*s.*, or even a cheaper machine still, *i.e.*, the 'improved Windsor,' will answer all practical purposes very well. 4. Yes.

[247.] *Chilled Brood — Pollen Combs.* — In uniting this season I removed some combs that had brood in them, both sealed and unsealed, placing them in a box at my side for a few minutes (at least, so I intended), but being called away urgently I forgot said combs, and in consequence the brood died. 1. What had I best do with these combs next year: would the dead brood be likely to cause foul brood if I let the bees clean them out in spring? 2. It is also

said that combs full of pollen, if kept indoors, are useless next year: where should one keep them if they are not wanted? I have some thirty frames of comb: some have a lot of pollen in them, and it seems a pity to destroy these one-year-old combs, they are just nice for extracting.—GEO. CORBYN.

REPLY.—1. The combs containing dead brood must be destroyed by burning. Chilled brood is one source of foul brood if left in the combs to rot and decay. 2. Pollen in combs kept indoors becomes hard and useless. We should cut out such portions of the extracting combs as contain pollen, and allow the bees to build them out again. Very rarely will the pollen be found in surplus chambers if excluder zinc be used.

[248.] *Hard and Soft Bee Candy.*—1. Is the recipe No. 5, page 161, *British Bee-keepers' Guide-book*, for hard or soft candy? If for hard, please say how to make soft. 2. Is 'Good's' or 'Scholz' candy suitable for winter use in the case of hives that are short of food?—R D.

REPLY.—1. Hard. Soft candy is made as follows:—'1. Use preferably a brass jelly or preserve pan, otherwise an enamelled iron or plain iron one. 2. Put in ten pounds of white granulated sugar at 2*d.* or 2¼*d.* per pound, two pints imperial of cold water, and half a teaspoonful of cream of tartar. 3. Set on or hang over a brisk fire and stir gently now and then till the sugar is all melted. This should require about fifteen minutes. 4. Almost immediately afterwards the whole will reach the boiling point, at first throwing up a deal of froth. The fire may be moderated or the pan withdrawn a little at this stage, when the foamy boil will settle down to a clear crackling one. This boiling should only occupy about two minutes. 5. Now try a drop let fall on a cold surface, withdrawing the pan from the fire in the meantime. If the drop at once begins to set so that in a few seconds it will draw out as a thread when touched with the finger, the mass is cooked enough. If not, boil a few seconds longer and try again. 6. Remove the pan from the fire and set it in a trough of cold water. It may be left there for a few minutes while the moulds (flat or soup plates will do) are being set ready, each with a thin sheet of paper rather larger than the mould laid in. Returning to the pan, commence and continue to stir briskly until the mass begins first to get dim in colour from incipient granulation and then to thicken to the consistency of thin porridge. Then pour into the moulds, warming any remainder slightly to get it to leave the pan. This cooling and stirring process should take about fifteen minutes more. 7. Thus in about thirty-two minutes we finish the whole process, with the result that we have twelve pounds of candy from ten pounds of sugar. The cakes should set within an hour so as to be safely turned out of the moulds. When quite cold they should still be soft enough to be easily scratched into with the finger-nail, and to melt in the mouth with a soft grain. 8. Invert them over the cluster of bees with the paper left on, and cover up warmly. This may be done while they are still somewhat warm.'—2. Yes.

[249.] *Site for an Apiary.*—My apiary is situated on the southern slope of a hill at a rather high elevation, is rather exposed and at times gets some very rough winds, especially cold east winds in early spring; these I consider the disadvantages. The advantages are—first, it is at home, where I can generally attend to swarms, &c., and it is nice dry ground, and good pasturage all round, almost wholly meadow and pasture land, with a good sprinkling of trefoil and clover. Now less than a quarter of a mile below runs a valley, say 200 feet below my apiary, which of course is much less bleak, and has the advantage of rising ground almost all ways, with equally good pasturage. I am wondering if it will pay me to shift my bees into this valley (of course they work a great portion of the valley now, only have to return uphill with their load). The chief disadvantages in moving them would be that they would be away from my home. The question is whether they would get more honey, enough to pay for the extra trouble and attention? I have about twenty colonies. Will you kindly give me your opinion, and allow any friends who may have had any experience in a similar case to give their opinion on the matter.—HILLSIDE.

REPLY.—We think the disadvantages of locating the bees a quarter of a mile away would more than outweigh those under which you are placed at present, and so we advise in preference the erection of some shelter from the exposure complained of, if practical. The increase in the honey crop would probably be very small, and not worth the labour involved in working at a distance from your home.

[250.] *A Beginner's Dilemma.*—I venture to ask you to help me with your advice in a dilemma. On looking at my best and strongest hive—pure Carniolans—a friend, a bee-expert, drew my attention to the fact that drones were going in and out of the hive, which indicated that it was queenless. Also, on further examination (I am only a beginner), I found that the hive from having been the strongest of ten, and extremely populous, has now barely enough bees to cover four frames for the winter. Will you tell me if I shall at once procure a Carniolan queen, or unite these to a somewhat weak swarm of black bees, with a black queen, or might I purchase a small swarm to add to my handful of Carniolans, and send for a new queen as well? I do not want to pay 42*s.* for a Carniolan queen and stock. As I have others this would be quite unnecessary, but I should like to save these, and should be greatly obliged if you would say how you recommend me to act either when introducing a queen or uniting the bees. I have lost so many in this process, when sprayed with peppermint solution, or eau-de-

Cologne, that I should like to try the flour process recommended by some of your correspondents. —APICULA.

REPLY.—You will find the native, or common black bee, less erratic in its doings than any of the foreign races, and for that reason it is preferable, especially for lady bee-keepers; besides, it is hardly worth while spending cash in requeening your 'handful of Carniolans.' Join the bees to the weak swarm as you propose. When uniting, try the flour plan, as has been described by so many correspondents lately.

[251.] *Sir W. Burnett's Disinfecting Fluid for Foul Brood.*—Can you tell me what Sir W. Burnett's disinfecting fluid is composed of, as I have been experimenting with it for foul brood with good results? Last year I cured two stocks in about a fortnight; also, three stocks this season, by sprinkling some on the floor of the hives and putting some in an empty frame at back of brood nest. I should mention that we use this fluid in the tin trade as a *flux* for soldering any kind of metal.—JOHN HOWSON.

REPLY.—Sir W. Burnett's disinfecting fluid consists of a solution of chloride of zinc. It is a powerful deodorising antiseptic solution, odourless but *very poisonous*. We should like to know the proportions used in uniting the bees without hurt to them.

[252.] *Using Year-old Foundation in Sections.*—Will you kindly say in *Journal*—1. If sections and super foundation inserted this year in hives, but seemingly not touched by bees, can be again given the following year? I am informed by others that bees will not readily work in such sections even if thoroughly well cleaned of propolis, &c., and that new sections and foundation are better. 2. Enclosed is a portion of wax foundation sold me by a well-known firm. Is it of good quality and sufficiently thin? It appears to me too thick.—J. H. N., *Watford*.

REPLY.—1. Certainly. It may, however, be admitted that bees have some preference for newly-made foundation as against that which has become rather hard and brittle through a year's disuse and exposure. No one would dream of not using up all sections, &c., which have been fitted with foundation the previous year. Expose the sections to a warm temperature for a time before using. 2. The foundation sent is a little thicker than we like, but the quality is very good indeed.

[253.] *Bees Refusing to take Food.*—I first commenced subscribing to your valuable little *Journal* about three months ago, and wish I had done so before, as I have learnt several things which have been, and will be very useful to me. I have two stocks of bees, which I have had two years, and neither of them has swarmed. From one of them I have taken thirty-seven one-pound sections this season, and from the other, over which I placed a super of eleven deep frames, I have thirty pounds of honey extracted. The misfortune with these frames was that they were used for brood, and, in consequence, I thought it better to allow them to remain until about a fortnight ago; and even then they were filled in the lower parts with a brown and red pasty substance, or was it pollen only? The bees in this neighbourhood are just now very busy on the ivy, which is just blooming, and the Michaelmas daisy, or, as many people call it, 'summer's farewell,' which most people have in their gardens, I have endeavoured to feed my bees with syrup, but they will not take it from the feeder I use. This is to me unaccountable, as I cannot see that they have much food stored; and if I pour a little on to the frames they take it greedily. I hear others speak of the same experience. I should be very much obliged if you could enlighten me. Will you please reply to the following:—1. Does the existence of an empty queen-cell in the hive of necessity indicate that the bees have really swarmed unknown to me? 2. What is the red pasty substance (not capped over) in combs? young brood, or simply stored pollen? 3. If I place queen-excluder between body-box and super, would the bees store in the super freely? 4. What is the best way to clean combs from which honey has been extracted? There is always a quantity of surplus honey, which the extractor will not remove; frame honey being much thicker than that stored in sections. 5. Why will not my bees take syrup from the feeder I specify? I have tried them over and over again.—SPRAKE, *South Petherton, Somerset*.

REPLY.—1. By no means. 2. Pollen only. 3. Yes. 4. Replace the combs in the box or super, cover the tops with quilts, as when on the hive, and in the evening give them back to the bees for twenty-four hours. They will clean them thoroughly. 5. There is something wrong with your feeder or with your method of feeding; if the syrup is well made and given warm in a rapid feeder, the bees should take one or two quarts down in a single night. You must lose no time, however, in feeding-up. In very cold weather they will refuse food altogether, and the bees will certainly perish for want before next spring if not fed up at once.

Echoes from the Hives.

Snettisham, Norfolk, October 14th.—From six frame hives I have taken just over 2 cwt. of honey, for nearly all of which I obtained 9*s.* 6*d.* per doz. wholesale, in pound glasses. Considering the year, I am well satisfied. I also noticed yesterday that five of my hives were very busy, the bees carrying pollen in as if it were May. Where do they get it?—GEO. CORBYN.

[Not knowing anything of your district, it is impossible for us to say.—EDS.]

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

D. Scott (Broseley, Salop).—The bee sent is a *first* cross with either a Ligurian or Cyprian drone. The probability is there are pure bees of one or the other of the above races within mating distance, as it is not at all likely the queen has mated with a hybrid drone from your friend's apiary. Shall be glad to hear from you when you have any interesting news to communicate.

W. H. Ley.—The slightly minty flavour in the honey is usually found in that gathered from limes. To be eligible for the competition you refer to, two *distinct* samples of run honey are required.

A Constant Reader.—There is something wrong about the honey sent, and we will be glad of the further particulars promised. It is like unripe clover honey badly handled; while in one of the samples it would seem by the taste as if tobacco dust had dropped into it.

R. B. (Garstang).—Honey is a very fair sample of heather honey; not quite so thick as some we have seen this year, but good in flavour. We shall be glad to have drawing of the honey-press.

W. T. C.—*Prize Essay on 'County Associations.'*—The prize was awarded, and the essay has already appeared in our columns.

P. P. (Havant).—We hope to give you some information on 'honey-press' shortly.

THE HONEY HARVEST IN BADENOCH, INVERNESS-SHIRE.

The wet weather during the greater part of summer and autumn has greatly militated against the success of apiarians in Scotland, but, judging from numerous reports that have appeared in the newspapers, Badenoch has been more successful than most places. The two most extensive apiarians in the district are Mr. Donald Grant, merchant, Kincraig, and Mr. John M'Donald, Lynchat, near Kingussie. Mr. M'Donald had about one hundredweight of splendid clover and heather honey, exhibited in a most attractive form at the Kingussie flower-show. Mr. M'Donald has since taken from the hives about one hundred pounds of sections, the average per hive being about forty pounds. Mr. Grant has about twenty stocks, and these have averaged over thirty-five pounds. Several other persons in the district possessing one or more hives have taken from them beautifully finished crates of supers, and altogether the season has turned out not so badly as was at one time anticipated. It was recently stated that something like fifteen tons had been either secured or disposed of in Grantown. Surely this is an extra large 'order' for even the flourishing capital of Strathspey!—*Local Paper.*

SOCIAL GATHERING OF BEE-KEEPERS.

The Wotton-under-Edge District B. K. Association hold their annual dinner on November 5th, and advantage will be taken of the occasion to distribute the medals presented by the B.B.K.A. to the respective winners. We cordially approve of social gatherings of bee-keepers such as the above; they tend very much to promote good feeling and friendliness among the members, besides giving a capital opportunity for the interchange of ideas and experiences calculated to be of great service to the beginner anxious to learn all he can from older hands. We shall be glad to have a report of the proceedings.

BEE CLIPPINGS.

Another 'Tall' One.—A Bee's Funeral.

Two bees were observed to issue from a hive, bearing between them the body of a comrade, with which they flew for a distance of ten yards. Then, with great care, they put it down, and selected a convenient hole at the side of the gravel-walk, to which they tenderly committed the body, head downwards, and then afterwards pushed against it two little stones, doubtless *in memoriam*. Their task being ended, they paused about a minute, perhaps to drop over their friend a sympathising tear; and then they flew away.

'The Early Bird,' as Usual.

In the course of some repairs going on recently at the church at Burnham Norton, Norfolk, the bricklayers found a large store of honey in a cavity of the roof. They arranged to go early the next morning to secure the prize, but some of the other workmen and the parish clerk went at an earlier hour and removed the honey, which weighed about seven stone.

*** *A Report of Mr. C. N. White's tour in Lincolnshire is in type, and will appear in our next. Several other communications are also held over for want of space.*

NOTICE.—We would ask our correspondents to take notice of the removal of our office, and request them in future to address all communications relating to the literary department, &c., to 'The Editors of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*'

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Editorial, Notices, &c.

USEFUL HINTS.

Formic Acid.—Readers who still continue to inquire regarding this remedy for foul brood must bear in mind that it cannot be used at this season except sparingly in food as directed, viz., a teaspoonful of acid, as used, to a quart of syrup. Formic acid evaporates rapidly, and the bees must be in a condition to rid themselves of its fumes by 'fanning,' or harm is done, and so it should never be used in this way save in warm weather and with fairly populous colonies; indeed, at no time should it be given by pouring the solution into frames of comb if the bees are weak in numbers.

New Remedies for Foul Brood.—A correspondent (251 on p. 515) has been experimenting with Sir W. Burnett's disinfecting fluid for the cure of foul brood. (By the way, in our reply to the query referred to, *uniting* has, by an oversight, been printed instead of *feeding*). It may not be desirable to impose a limit to the number of remedies for curing foul brood, nor do we wish in any way to discourage investigation in any direction where good is likely to result; but we think that the use of really dangerous compounds should be avoided. For this reason anything so poisonous as a fluid which is really a solution of *chloride of zinc* should on no account be used about honey or bees. Two distinctly new remedies are before bee-keepers just now. First, a ten per cent solution of anhydrous formic acid—the one prepared and sold for bee-keepers' use; and, second, naphthaline—a white powder which may be had from any chemist at a nominal cost. If these two are thoroughly tested, as they seem destined to be, and either retained as something better than has gone before, or discarded as worthless, we may then go further, and perhaps not fare worse; meantime let us, to misquote Shakespeare, 'rather bear those evils which we have than fly to others we know not of.'

Weather and Late Feeding.—Snow on the 27th and sharp frost on the morning of the 28th in the suburbs of the metropolis denotes a stoppage of all bee-work proper, and it now remains for those whose dilatoriness has caused work to be still left undone to adopt the best means of preventing disaster. Warm food and warm wrappings is all that can be advocated if feeding is yet required; so that if some colonies are still found with insufficient stores, and as but little sealing of food will now be done, it will be better and safer to give a three or four-pound cake of soft candy to help in carrying the stocks through, than giving the bees several quarts of syrup never likely to be sealed over. For candy feeding in winter we again draw attention to the useful device mentioned in some former 'hints' (p. 470). The 'device' may be made suitable for embedding a one-pound or a four-pound cake of candy, by cutting the strips of wood from which it is made longer or shorter as required.

Queenless Stocks.—There seem still a good many queenless colonies to be dealt with, and correspondents are naturally anxious to know the best remedy. Unfortunately, however, the mischief has not been seen to in time, and there is no remedy except utilising the queenless bees by uniting them to stocks where increase of population is desirable.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee meeting held at 105 Jermyn Street on Tuesday, the 21st inst. Present: T. W. Cowan (in the chair), Hon. and Rev. H. Bligh, Rev. Dr. Bartrum, Rev. J. L. Seager, Captain Bush, R.N., Rev. R. Errington, H. Jones, W. Lees McClure, R. T. Andrews, J. Garratt, W.

O'B. Glennie (treasurer), the Secretary, and the Rev. W. E. Burkitt, *ex officio*. The minutes of the last meeting were read and confirmed. The Committee had under consideration the arrangement of the prize schedule for the Royal Agricultural Show, to be held at Doncaster next year. In accordance with the recommendation of the Exhibitions Sub-Committee, it was resolved to increase the amount offered in prizes for collections of appliances, and to offer prizes for the best model of bee-tent suitable for use at agricultural and horticultural shows. The Examinations Sub-Committee were requested to make the necessary arrangements for conducting the second-class examination to take place on October 31st and November 1st.

BRITISH BEE-KEEPERS' ASSOCIATION.

The last quarterly *conversazione* of the present year was held on Tuesday, October 21st, at six p.m., in the Board Room of the Royal Society for the Prevention of Cruelty to Animals, 105 Jermyn Street, St. James's, when, among others, the following gentlemen were present:—Mr. T. W. Cowan, Mr. Andrews, Mr. Garratt, Mr. Hooker, the Hon. and Rev. Henry Bligh, Mr. Grimshaw, Mr. Meggy, Mr. Glennie, the Rev. W. E. Burkitt, Mr. Badcock, &c.

Mr. Andrews (Hertford), having been voted to the chair, opened the proceedings, and invited any gentleman of the company present to introduce a subject for discussion, whereupon Mr. Garratt suggested that it would be very agreeable to the meeting if Mr. Cowan would kindly oblige them with a recital of his observations and experiences respecting bee-keeping gained during a recent visit to some of the south-eastern departments of France.

Mr. Cowan explained that he had not come prepared to speak on the topic mentioned by Mr. Garratt, but if they would allow him to refer to his note-book and it was the wish of the meeting, he would endeavour to recount briefly some of the incidents of his journey, and would produce some photographs taken during the trip that would, perhaps, give some idea of the style of bee-keeping he had witnessed, and would interest those present. The excursion he had made was through the departments of Savoie and Haute Savoie, which were on the eastern border of France, and joined the countries of Switzerland and Italy. When leaving England, very ill, he was glad to go away for complete rest. In May he received a letter from his friend, M. Bertrand, who had at that time staying with him M. de Layens, asking Mr. Cowan if he would join them in an excursion to the bee-keepers of Savoie. He had already on a previous occasion travelled with these gentlemen, and this was an opportunity not to be lost, especially as he was anxious to visit this lovely country during the height of the honey season. Mr. de Layens was likewise having a rest from his labours, for not only was he one of the leading bee-keepers in France, but also a botanist, and is at the present moment engaged on a voluminous work on the flora of France. This work was to contain something like 3000 to 4000 illustrations, which M. de Layens was preparing from photographs of the flowers. The time being arranged, he went to Nyon, and next day they started by steamer to Nernier, where they met M. Genoud, who conducted them to his apiary at Messerie. After lunch, they visited the apiary and examined some of the hives. M. Genoud had, unfortunately, made a bad start in bee-keeping by adopting German hives with small frames, but was gradually transferring the bees into larger hives. Here they found the Layens hive; also the Cowan hive, made from reading description in the *Guide-book*. He had met with considerable success, and showed them some very fine honey. The principal pasturage is from sainfoin, and they were struck with astonishment to see the large masses of this everywhere. The Layens hive is very large, and has from sixteen to twenty-four frames, about double the size of our standard frames, and bee-keepers who use these hives have entirely got over the difficulty with regard to the prevention of swarming. These and the large Dadant hives are *par excellence* non-swarming hives if properly managed.

At Messerie they also visited M. Magnin, the curé of the place, who had sixteen hives in a bee-house. These they found in capital order. The curé told them a story about stopping a swarm of bees and causing them to alight by playing on the harmonium. He also said people attributed bees swarming on Sundays to the noise made by the bells. A drive of two and a half hours brought them to Annemasse, where they called on Dr. Henon, a botanist, who was at present engaged in making experiments in grafting vines on American stocks to resist the phylloxera, which had destroyed so many of the vineyards in the country. He had forty Layens hives, and left them to themselves, but got good results. They then went to La Roche, and drove thence to Bonneville, in the valley of the Arve, on the way to Chamounix. Here they stayed with M. Morel-Fredel, and were well entertained. He has between fifty and sixty hives of the Layens pattern. Several were examined, and found in good working order. On some of these hives, although occupying twenty frames, M. Fredel had worked supers. He is in a wonderfully fertile valley, rather narrow, with mountains on either side, so that the bees are within reach of a continuous honey-flow. Sainfoin was to be seen in all directions, and some honey was tasted having the flavour of *astrantia*, which grew eight kilomètres away, so that the bees must have travelled all that distance for it. M. Fredel told them a curious fact about the honey-flow. A hot day and a cold night produced honey-dew. With a *bise* (a sort of dry north-east wind) the honey-flow ceased suddenly. He (Mr. Cowan) noticed a quantity of pieces of rotten wood placed on the hives, which M. Fredel explained was to amuse the wasps and hornets, which were attracted by it, and

did not interfere with the hives. Mr. Cowan thought English bee-keepers might make use of this hint.

Time would not allow him to dwell upon the lovely scenery they passed through in the Valle de Thônes, or the masses of sainfoin and wild sage they saw between Bonneville and Talloires, on Lake Annecy. The fields were literally red and blue with these splendid honey flowers. The steamer took them to Annecy, where they were met by M. Mermey, of Aix-les-Bains, who had come over to be their guide. They then went to see M. Froissard, Chief of the Prefecture, who had eighteen hives, all on the Layens principle. These were under trees, and M. Froissard found they did better in this position. M. Froissard is the author of a book, and has done a good deal towards popularising bee-keeping, for which he had been decorated with the Order of Mérite Agricole, which entitled him to wear a ribbon, not a blue, but a red one. They then went to see M. Nicot, a retired Custom House officer and a most enthusiastic bee-keeper. He was trying different sorts of hives, and they saw one with twenty-six frames (Layens) that had two supers on as well. He had got a 'Cowan' hive in a bee-house, that drew out on rollers, and had given him the largest quantity of honey of any hive last year. It was four storeys high. They also saw one of Abbott's hives, with three storeys of sections. Whilst making visits from place to place they were always offered wine and something to eat. It was difficult to refuse the former, as this was the fashion of the country; but Mr. Cowan's friends kindly did the tasting for him. Wine is the industry of the country, and as the vines have failed bee-keepers are naturally turning their attention to making a substitute from honey. The thoughts of the inhabitants seem centred entirely in the production of wine, which subject was generally the sole topic of conversation. That fact was specially noticeable at meals, which occupied an unusually long time, dinner often lasting two or more hours. Thus the conversation often turned on bees and their relation to the trade, bee-keepers being anxious to introduce honey and make it to some extent replace the wine. They were most fortunate in the weather, which was fine all the time, and only just when they were returning home, and had entered the train, did the rain come down.

They then went to see Dr. and Madame Lavenay, the lady being an enthusiastic bee-keeper. She had fifteen hives (Layens) worked successfully. She did all the work herself—not very easy work for a lady, considering the size of the frames. Last year she had a hive of twenty frames and two supers. They then proceeded to M. Durand's (Mayor of Metz), who had some twenty-five Layens' hives, some under trees, which he said did better than those in the open. He thought the bees in the shade did not fly out so soon in the spring, and therefore did not perish so much as the others. From here they went to Rumilly, and visited M. Collet, road surveyor, who had eight hives, and drove them to an apiary belonging to M. Mermey. This they particularly wished to see, as M. Mermey had a hive that had had foul brood in it which he had taken from an apiary belonging to some brotherhood. He had given them naphthaline, and found on the next day the dead brood was being removed. He then gave them eucalyptus in the syrup, and had cured them. Every frame was carefully examined by Mr. Cowan and his friends, and not a trace of disease was found. This apiary, as will be seen from the photograph, is situated in the midst of sainfoin. Next day they went to Massingy, and visited some peasant proprietors. Marie Picon had nine Layens hives, and his brother, Fabian Picon, had twenty-three. A photograph of the family was taken, showing four generations. The bee-fever has taken hold of this district, and in this village twelve persons had sixty frame hives. They then went to see M. Ramuz, and saw some bees swarm belonging to some of the neighbours which settled on a tree. M. Ramuz had become so strongly converted to bee-keeping that he sold his cattle in the market and invested the money in bees. Mr. Cowan found that formerly bees had been kept much more extensively, hardly a house being without them, but that they had disappeared through disease and other causes. Now, however, another start was being made with modern hives. The hives of these bee-keepers are in splendid order, the combs as straight as possible, showing that they knew what they were about.

They then went to Albens and visited M. Rochet, and after that called to see Count Mouxy de Loche at Gresy, near Aix. The Count was away, but his son received us, and told us his father had got some correspondence of François Huber that had not been published. The Count himself and his two sons paid us a visit at our hotel at Aix-les-Bains, and brought all the letters, which he gave into our care for perusal. The Count's father had been on intimate terms and in constant correspondence with Huber, so that these letters may contain something of interest, and, of course, if they do, they will appear in the *B.B.J.* Next day they visited the apiary of M. Mermey, near Aix, and he told Mr. Cowan that Mr. G. Neighbour had paid him a visit when he was staying at Aix for the baths. Aix is a fashionable watering-place, and not much time was spent there; but they went on to Albertville, and thence to Aigue Blanche, where they mounted up as far as Le Bois to see M. Ruet. He received them coolly at first, but warmed up after some refreshment, and told them he was so astonished to see this trio of bee-keepers that it quite took his breath away. He was making frames, and had about twenty hives. Here they had the opportunity of seeing and handling some very quiet Cyprian bees crossed with blacks. M. Ruet looks after 116 hives in the neighbourhood. They then went to Moutier and up the Isere Valley, with its lovely views of snow-clad mountains.

M. Rulliet, of Bellentre, was next visited

He is the President of the St. Bernard Bee Society, and schoolmaster of the place. They found thirty-six hives here, principally of the Layens and Dadant patterns. M. Rulliet accompanied them to Bourg St. Maurice at the foot of the Petit St. Bernard and on the way they called to see M. Tressallet, the Mayor of Bellentre, who lived at Bon Conseil. He had eleven hives, seen well in the accompanying photograph with M. de Layens sitting by the side of the bee-house.

M. Tressallet accompanied them to Bourg St. Maurice where they were astonished to find quite a gathering of bee-keepers. M. Rulliet had telegraphed, and brought down a number of them from different parts. M. Empren had come all the way down from Villa Roger, a distance of eighteen kilomètres. He was the Vice-President of the Society and an enthusiastic bee-keeper. Quite a pleasant time was spent here and these Savoy bee-keepers entertained them at dinner, after which half-an-hour's walk brought them to the apiary of M. Arpin, who had two bee-houses with eighteen hives of bees. The photograph taken at this place shows some of the bee-keepers present.

He (Mr. Cowan) was much impressed with the advance bee-keeping was making in that country, and was much struck with the abundance of pasturage. He found all the bee-keepers he came across most intelligent, and that all three of us were well known to them. At dinner some of the bee-keepers were asked the impression made upon them on receipt of the telegram. Some were astonished, and could hardly believe that Bertrand, Layens, and Cowan were really coming; but M. Empren said he had seen that Mr. Cowan had been to America and nearly all over Europe, and he was sure he would not forget the bee-keepers in the wild valleys of Savoy. M. Tressallet said this would be a memorable day for them, and the visit of these three gentlemen would be entered in the archives of the Commune.

In the district there were about 200 frame hives and about 300 common hives. Mountains and fertile valleys surrounded the inhabitants; thus the honey season lasted from spring to autumn, vegetation being constantly luxuriant within a small area and at different altitudes, according to the time of year.

They found all the bee-keepers readers of the *Revue Internationale*, by M. Bertrand, as well as his excellent book, and also of the *Bee-keepers' Guide-book*. Many of these men are only peasants, but extremely intelligent, and endeavour to carry into actual practice what they read about. M. Brunet had his bees above Aine, 1200 metres high, and took them another 100 metres to fresh pastures. The honey tasted was very fine, and some had the flavour of almonds. They had altogether visited nineteen apiaries, and had examined several hundred hives, but he (Mr. Cowan) had not received a single sting, which will give some idea of how the bees were working. Of course he had not time to describe all he had seen, but he hoped this would only be an introduction, giving a general idea; but he hoped to enter further into specific matters in the *British Bee Journal*, and to relate fully the impressions worthy of mention which he had formed during the interesting visit to the bee-keepers of Savoy (applause).

(*A Report of the discussion following will appear next week.*)

THE SCIENCE OF BEE-KEEPING.

Heat: Its Economy and Dispensation.

(*Concluded from p.* 508.)

The queen-cell seems specially designed, with its outer honey-combed wall, so as to present the largest surface to the direct action of the warm ascending air. The pupa of a young queen lies head downward in the cell, with the under part of its body touching the cell-wall. The warm air from the body of the pupa flows towards the upper part of the spacious air-chamber, and is partly imprisoned, finally descending along the wall furthest from the insect, and slowly passing out by the capping, whilst fresh air enters just where the pupa touches the cell-wall. The position of the queen, worker, and the drone, whilst lying in the cell as pupæ under development, favours fast rather than slow exhalations to flow from the abdomen. Whilst the young queen receives a liberal supply of fresh air for breathing, an abundance of warm vapour seems to be especially concentrated on her abdomen. We also find by far the largest amount of free air-space in the queen-cell: the worker-cell comes next, and in that of the drone last. On the other hand, by virtue of the large convex capping in the drone-cell and the small amount of air-space compared with the size of the pupa, the current of air is fastest in the drone-cell, less in the worker, and least in that of the queen. The queen passes through her pupa transformation in about seven days, the worker in about eleven, and the drone in about fourteen.

Weak colonies usually rear their queens above the entrance of the hive on the fore part of the combs, where the cluster underneath can supply warmth, while guarding against the admission of cold air.

Of the outer or exterior appendages of bees the hair and the wings are the last to be formed, and it is more especially for the wings that the right degree of warmth seems to be required: indeed, a young queen may issue otherwise fully developed, appear lively and in first-class condition, and after a few days repeatedly try to take her nuptial flight, whilst her wings on one or both sides present the appearance of being partly singed, this peculiarity being caused by want of the proper heat during their development. At other times, when conditions are still less favourable, the ends of some of the legs suffer in the same way. Workers being reared at all times of the year, are also subject to similar malformations or disfigurements from the same cause, though less frequently than queens, through the former being usually enclosed in a compact mass of brood. With

workers the hair also seems to be affected severely in development, but such as are imperfect die, or are thrown out on or before reaching maturity.

Pollen Discharges.—If a nucleus hive—say, of two or three frames—is formed from a populous stock hive on a rainy day during the active breeding season, and this nucleus is watched, twenty minutes later several bees will be seen leaving it, one or two at a time, and voiding a large amount of yellow or coloured matter before returning to the mother-hive. These dejections are pollen discharges. Observe the bees so issuing, and we notice that they are maiden and middle-aged bees, and not the youngest nor the oldest members of the community. A large number of the field-workers, forced by the rain to stay at home, occupy themselves in elaborating food for the brood, in which a large amount of pollen is used, and some of these being suddenly removed from the warmth of the full colony to conditions unfavourable for that elaboration (*i.e.*, the cooler temperature of the nucleus) are perforce compelled to sally forth and rid themselves of material which had become unfit to transform into chyle. The same thing is seen when showery weather alternates with sunshine in early summer. The field-workers, kept indoors by the showers, immediately began to help the nurse-bees as before; then sudden sunshine tempts them into the cooler air outside, and they void the hardly elaborated brood-food as before. In this contingency nature has provided them with special facilities for expelling instantly that which, in such a sudden change of conditions, is no more required, but becomes a nuisance.

If we examine the numerous droppings on the bushes, fences, and buildings near an apiary at such a time, it will be seen that the liquid portion dries up, leaving a mass of pollen-dust. There is no doubt that the field-workers elaborate the larger portion, if not the entire amount, of brood food fed to the young in which pollen enters.

In this connexion I would point out that during cold weather bees have to rid themselves of the pollen taken, immediately on finding conditions unfavourable for its transformation, or they become later unable to do so. Pollen discharges in their worst form are improperly called dysentery, for want of a more definite term.

Very young bees are, or can be, great manipulators of fresh nectar inside the hive. I have repeatedly placed a frame or two of ripe sealed Carniolan brood in a black stock, where breeding had ceased, at a time of scarcity, when the black bees would not enter the feeder above; yet in a few days the feeder was full, in each case, of young Carniolans, and emptied of its syrup each night by these young bees. This proves that bees can, and very likely do, occupy themselves in storing the thin liquid nectar at a very early age.

In early districts a great advantage is gained during spring by reducing the width of hive entrances at night, and enlarging them during the daytime, according to the state of the weather. During excessive heat, besides keeping entrances at full width, hives should be wedged up a little in front to admit sufficient fresh air; but when queens are laying freely great care should be taken not to cool the brood nest beyond measure, or the colony will suffer considerably, and its honey-gathering capacity will be seriously affected.

I have said that pupæ have the power of generating heat, and I consider the action of bees at swarming-time not only shows this, but also that they themselves are aware of its existence, for they do not hesitate to leave a large amount of sealed brood in the hive when they swarm, and leave this brood to maintain, more or less, its own warmth until it hatches out. I have times out of number displaced the parent stock thirteen days after forcing a swarm, and always without bad results, from the same cause. This fact is of great value when receiving costly imported queens. In such a case I have, as late as September, given such two frames of quite ripe sealed brood, adding a fresh frame each few days, and wintered the stock as strong in bees as an ordinary colony. In such a case the combs should also contain a little honey and pollen, but no larvæ—two clean, empty combs being placed one on each side of the brood combs, all covered up warmly and the entrance contracted. The queen will be usually laying in the warm centre brood combs the next day, and the few bees that have accompanied her will be gathering a pollen a day later. The bottle-feeder should only be placed on eight days after making the nucleus. It is hardly necessary to point out to the reader that in the above case the brood yet in the cells represents the heat-giving cluster *pro tempore;* the few bees accompanying the queen immediately remove a little of the honey just above the brood to another part of the hive. The queen then finds conditions favourable for laying. This heat-producing quality of ripe brood is a very useful auxiliary to the bee-keeper for making or strengthening nuclei, or assisting colonies that have been weakened by displacement, in giving such colonies brood approaching maturity. From the same cause, when spreading brood in populous hives, a colony will not suffer if two combs of sealed brood are left either side of each frame of foundation, or built-comb inserted.—PETER BOIS, *Jersey.*

BEE-STINGS FOR RHEUMATISM.

An Austrian physician, Dr. Terc, who seems to have made extended experiments for a number of years, asserts that a person stung by bees acquires thereby a relative immunity from the consequences of subsequent stings; in other words, that the virus of the bee-sting acts like a vaccinal inoculation against its own poison. The immunity lasts six months, sometimes less, probably according to the number of stings inflicted on a person.

Correspondence.

The Editors do not hold themselves responsible for the opinions expressed by correspondents. No notice will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITORS of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements*).

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

IN THE HUT.

'The best made huts o' men and mice gang aft agley.'

[413.] Not many (myself among them) know fully the meaning of 'agley;' like Mark Twain, who declared the donkeys quite *recherché*, though he said he didn't know what *recherché* meant; so, after altering the text of 'Rough Rab' slightly to accommodate the hut, I will (like many more misquoters) substitute 'agee' for 'agley.' The hut, which when built we thought might be toppled over the garden wall without damage, does not bear so well the wettings and dryings, the inevitable risings and fallings of the soil, always (in the Gospel according to Darwin) resulting from the action of worms. The folding doors do not fit so tightly where they ought to, and jam where they oughtn't to, and the bees get in. The doors, in fact, are agee, not agley. They are awry, and are on a distinct 'skew-whift.' There is a species of wild amusement in watching the bees entering by hitherto unsuspected apertures, and a savage gleam of satisfaction in the eye (he has *two*) of 'X-Tractor' whilst neatly nailing a strip of kamptulicon over the sore place, like mother used her strip of diachlyon over the wounds of childhood time. The delight of witnessing the confusion and vexation of a series of foiled bees as they come to prey with their well-known confiding dispositions, can only be fully experienced by bee-keepers who have got up some morning to find themselves honeyless as regards a crate of sections, left safe to all appearance.

By the irony of fate, coincident with the first intimation of the hut's decay, comes the news to me of another 'Hut' in a totally unexpected quarter, and unless I mistake not, much that will be read by bee-keepers will be written in that hut. Let us hope it will be filled with the spirit of happiness and long life.

Some kind friend, by a coincidence, has saved me the trouble of giving you the exact weighing up of the state of things on returning from the moors; that is, plenty of grand stores in brood nests, snowy white, covered with big healthy bees full of vim, and running over with a desire to harpoon something; no sections, however, the fine weather being too late after all for surplus. Strange to say, the 'wise bees' you name in last week's 'Useful Hints' were only wise with me in not going into *sections*. They forgot all about it when they came to shallow-frame supers, and these contain all the heather honey I got, one hive giving me about twenty-five pounds of purest stuff, but, unfortunately, not so good-looking, because only about half sealed over. Two or three days more of good weather would have made all the difference in the appearance of these combs on the table. Happy thought! Come a quiet time; I will steal a few back combs (not hair combs) from some hive which can spare them; I will with my plumber's scraper get the honey all off down to the midrib, and make some more mead. Mr. Useful Hints, please note.

This brings me to the point, that if one brewed more mead, say, when honey is too cheap to be well remunerative, it would pay the domestic bee-keeper (I mean the non-professional bee-man, not a keeper of domestic bees); more mead and less strong tea, I am convinced, would be more conducive to health; but it would have to be better stuff than my last year's make—I cannot even drink it myself, and leave an open bottle about in full confidence that domestics will give it a wide berth! I am told it will require eight years. I would believe them if they said eighty.

If, as sometimes said, there be confusion in the multitude of counsels at times, there may be in many suggested remedies for foul brood; I would recommend the bee-keeper, having failed with carbolic or salicylic acids, to go in thoroughly for only one at a time, formic acid or naphthaline for example. We will then, perhaps, get 'forrarder' without having in desperation to resort to the radical cure of all—the fiery ordeal. If the curse comes to roost near the hut naphthaline would be my choice, but I am pretty sure formic, carbolic, salicylic acids, camphor, terebine, eucalyptol, thymol, and lots of other things will kill the Bacilli of foul brood, yet nothing known up to now that can be used will destroy the spores—many chemicals will kill trees and not injure the seeds—so if we keep pegging away at the results the causes will in time wear themselves out. Would that our associations were wealthy enough to compensate the poorer bee-keepers who were willing to have infected hives and combs burnt, even when the disease becomes apparently eradicated.—X-TRACTOR.

THE DEPOSIT SYSTEM AND A REFERENCE BOOK.

[414.] I have freely used your sales column during the past season for selling queens, and I have personally no objection to my customers depositing their money with you until satisfied; but a very important objection at once arises in the case of low-priced articles which are bought in small quantities by a large number of buyers,

as the needful deduction of sixpence for your office expenses would be too heavy a proportion of the price of the article. For instance, virgin queens have been advertised as low as 1*s.* 6*d.* each, and bee-plants frequently as cheap as 1*s.* per hundred or less. Now, it is plain that if a buyer chooses to deposit his money, and sixpence is deducted, it will no longer pay to sell low-priced articles through the *B.B.J.*, unless the advertiser inserts a notice that sixpence extra must be sent if the money is remitted through your office, or that no sales will be effected on the deposit system, which will at any rate look suspicious. The proper remedy is, I think, to adopt a reference-book on the same lines as the *Exchange and Mart*. For a fee of half a crown a-year a note should be attached free to all the advertisements of such sellers saying that their names are entered on your reference list, and a book of a hundred tickets should also be supplied in case the advertiser wishes to answer an advertisement, as he could then send a ticket as a proof of his good standing—a new benefit to be got by joining a Bee Association. I think only members of affiliated associations should be placed on the reference list, and the application should be signed by at least one clergyman or minister and by the secretary of the Country Association to which the applicant belongs.—EDWARD J. GIBBINS, *Neath, Glamorganshire, Oct.*, 1890.

[Our desire is to make the terms of the deposit system, carried out at this office, as simple as possible, and to cumber it with only the few conditions needed to make it safe. This being so, and bearing in mind the fact that it will hardly be availed of for such small sums as are named by our correspondent, it seems scarcely necessary to add to the labour by adopting a 'Reference-book' at the outset. If the need for one arises, we will probably carry out this suggestion in some form. We are very pleased to find the deposit system already being taken advantage of.—EDS.]

NOTES BY THE WAY.

[415.] The swarm of bees noticed by Mr. G. Fairs (407) was doubtless a starvation swarm. Many of the late and second swarms in our district have died from want, and those that managed to exist till 'taking' time had very little, if any, sealed stores. I am speaking generally of late swarms and casts in straw skeps belonging to cottagers. The early swarms and stocks that did not swarm are fair to good, and will go into winter quarters in very good condition. Some few cases of robbing have come to my notice, which I think can be accounted for by late swarming, and the unsuitable weather for mating the young queens. This has rendered a larger percentage of stocks queenless, and these queenless stocks, owing to natural causes, becoming weak in numbers, could not withstand the onslaught of robbers, and had to succumb to the inevitable.

No doubt some one will think, if not say, it is very easy to be wise after the event; but tell us how to judge beforehand, so that we may avert the loss of queenless stocks? Well, friends, I should blow a little smoke in at the entrance, and turn up the hive and have ocular demonstration; but to the novice, who only beholds his bees afar off, and as soon as one of the bees in quest of nectar comes towards him begins to make tracks for the house, I think to such an one the presence of drones late in the season—say the middle of September—would be a pretty sure sign that all is not well with the queen, if there should be one; also a show of bees around the entrance when other stocks are quiet is an indication of queenlessness, and if such is noticed day after day, the colony should receive prompt attention to secure the contents before robbing bees clear out the lot. Virgin queens have been advertised for sale in the bee-papers during the past season or two, and bee-keepers who aim at improving their strain of bees have probably availed themselves of the opportunity of introducing fresh blood into their stocks. Perhaps some who have purchased *virgin* queens will give their experience as to introduction, mating, &c., and the proportion that turned out drone-breeders —*i.e.*, those that reached too mature an age to be properly fertilised, through postal delays, unsettled weather, and other causes.

I cannot give Mr. Luck (411) any information regarding 'Punic bees,' though I believe they hail from North Africa: but when Mr. Luck has tried all the imported races, and noted down the many important points that each variety excels in, let him get a colony of pure English, and pit them against the best of the foreign races, and, other things being equal, I have not the slightest doubt but that the native bees will outstrip them in surplus honey for the bee-keeper at the end of the season. Otherwise, how is it, I ask, that seasons in and seasons out of the honey-flow, I have honey for disposal, while other apiarians, with the fancy races of bees, have but little surplus? I should be accounted egotistical—if not 'axe-grinding'—if I ventured to plank down the many testimonials I receive yearly in praise of my honey, the beauty of its capping, its delicious flavour, the well-filled sections, and last, but not least, the pristine state which it retains till late in another season. I simply acknowledge my indebtedness for the above salient points in my honey to the fact that I have no foreign blood introduced into my apiary. My aim for several years past has been to improve my strain of English bees by introducing fresh English blood into my apiary, though previous volumes of the *B. B. J.* sufficiently indicate that I do not think it is possible for apiaries to decline or deteriorate from in-and-in breeding, even if no trouble be taken to introduce fresh blood directly by the apiarian. If there are neighbouring apiaries scattered on every side, my contention was then, and it is still the same, that the natural habits of the young queens and drones will keep up a constant introduction of

fresh blood into the apiary by intermarriage with bees from a distance.

This is a digression, but will indicate what I want to demonstrate, that the *English bee* is *the bee* for the English climate. I in nowise wish to underrate the labours of those who have introduced these foreign races, and tried to improve our strain by the introduction of foreign blood into our country. Possibly in the dim and very distant future it may achieve the desired result. That will be seen and proved in the generations of bee-keepers yet unborn. For the present and immediate race of bee-keepers the English bees have more desirable traits as honey gatherers and freedom from disease than all the imported races put together.

In addition to our Editor's reply to 246, I would suggest placing a large flat or convex cake of candy over the frames under the quilts, wrapping up warm and snug, and reducing entrance to one inch. This will retain the heat of the hive, keep the interior warm and dry, and prevent to a great extent the unsealed stores absorbing atmospheric moisture.

I beg to endorse 412. When we think for a moment, and remember how much the fruit crop depends on the busy bee, I, too, think that some honey classes should have been added, if for no other reason than to emphasise the lecture of our great master of apiculture, the Rev. Professor Cheshire, and I venture to ask that our Editor will reproduce the Professor's lecture in these pages. That would meet, in an eminent degree, the wish expressed in 408. To show how very necessary it is that such knowledge should be sown broadcast throughout the land, I enclose some cuttings from the *Newbury Weekly News* that appeared during the summer. *Au revoir.*—W. Woodley, *World's End, Newbury.*

A SIMPLE BOX FOR INTRODUCING QUEENS.

[416.] Many thanks for your prompt advice *re* the sample of sugar; but, alas! my bees were dainty, and would not take it down, not even when I filtered it through charcoal to remove some of the treacly smell, which was rather strong. I had made up the whole hundredweight, and gave it them warm in a rapid feeder. They got very excited over it, and so did the wasps. *They* weren't dainty about it, so I put it down as another case of *experientia docet*, and bought some better quality, which they disposed off at the rate of about five pounds every twenty-four hours, and have safely stowed it all away and sealed it. I shall, however, hope that they will pay for the 'experience' next season. In 'Notes by the Way' (page 499) I noticed your correspondent (386) mentions using a glass tumbler and perforated zinc for introducing queens. Apart from paying 1*s.* 6*d.* for a tube queen-cage, I never could see the benefit of caging her majesty in a tube to be worried by a lot of excited workers, with no place to get out of their way should she so desire to do, so I use a very cheap cage, of which I have made several out of common match-boxes, one of which I forward for your inspection. They don't cost anything but a few minutes' spare time to make, and I have found them successful this year in the three or four cases in which I have used them. The principle is similar to that adopted by Mr. Woodley, only instead of removing the wire gauze I slide the box along a little over a hole in the quilt. This has every advantage of the tumbler and zinc, and is easier to handle and covers up warmer.—F. J. Cribb, *Beaconsfield House, Morton, Gainsborough, October 20th,* 1890.

[Quite a natty and effective little contrivance, and containing all the advantages claimed for it. The inside portion of a common fusee or match box has its bottom cut away and a slip of glass same size substituted, a narrow slip of paper being pasted round the junction. The open side of the box is then three-parts covered by wire gauze, bent at the sides so ⌐. When this is pushed into the box it keeps quite firm. In using, the queen is placed in the box, and the latter laid with its wired portion over the feed-hole. The queen—visible through the glass—is thus safe from the bees till ready for 'introducing,' when the box is moved till its uncovered portion comes over the hole, and the queen and bees are joined.—Eds.]

EXPERIENCES DURING FORTY YEARS.

[417.] In my letter (No. 385, p. 498) in your *Journal* of October 16th I endeavoured, as far as I could remember, to give you a few of my bee-experiences between the years 1850 and 1860. I will now give you a general idea of what took place in the next ten years, namely, from 1860 to 1870.

After 1860 the science of bee-keeping made a sudden start, and my experience on the subject made me look out more and more for the experience of others, and I was always thirsting for bee-books and other sources of information. In the year 1864 a well-known and respected minister of a Scotch church in London, who procured his honey from his hives without killing the bees, sent an account of his honey harvest to the *Times*. [Our correspondent alludes to the Rev. Dr. Cumming, of Tunbridge Wells, who did good service to bee-keeping by drawing attention to the subject in the *Times*. A lively controversy ensued, in which some noted bee-keepers joined, including the late Mr. Woodbury. We have a vivid recollection of how this correspondence impressed us.—Eds.] A large number of letters were sent to the *Times* office, requesting to know who was the writer and how it was managed. The writer therefore addressed a number of letters to the *Times*, describing such hives as he used and how he managed them. Much interest was taken in these letters, and they were finally printed, with extra information, in a book entitled *Bee-keeping by the 'Times' Bee-master.* In the preface the author says: 'I am persuaded there has been much useful and instructive matter in my letters,

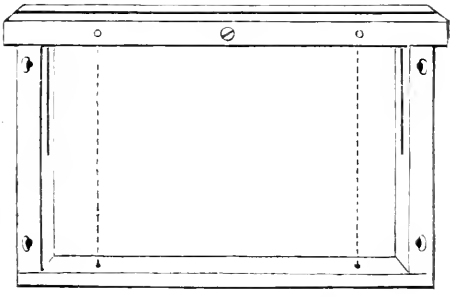
because I have received a few very ill-natured communications.' He gives us the benefit of one, a part of which I copy: 'I have read very attentively the letters in the *Times* about bees, and am convinced that much of what you say is mere old woman's twaddle. Your nonsensical rant about loyalty to the queen-bee in these days, &c., &c., both gives evidence of your anility and failing intellect. I shall use all my literary influence (which is considerable) in preventing the circulation of your poor, trumpery, two-penny-halfpenny bee-papers.' The bee-master goes on to say: 'I can easily see that, had I praised several ingenious contrivances for the residence of bees I should have provoked fewer charges of ignorance of modern apiculture. I repeat, I have read much on the subject, but my recommendations are not the results of theory and imagination, but of practical knowledge and of careful watching.'

In the year 1866 the well-known bee-keeper and bee-appliance manufacturer, Mr. Alfred Neighbour, published a second edition of a book, entitled *The Apiary: or Bees, Beehives, and Bee-culture.* It contained much very useful and interesting information. Among other hives it mentioned the 'Woodbury bar and frame hive.' This was a distinct and very important advance. Before that I had been very much in ignorance of the daily goings on of the bees inside the hive, but now it was possible, with the aid of the 'Observatory' hive, which was also mentioned, to overcome that difficulty, and I was not long in getting suitable hives made for my own study.

Another advance, equally important, was also mentioned, namely, wax foundations, and the impressed cell-bottoms on their sides. Without this the frames could scarcely have been complete.

Soon after this I visited a gentleman who was not only an enthusiastic bee-keeper, but was also scientific and practical. I there saw for the first time in his study an 'Observatory' hive with a wax-sheet, on which bees were at work. It was, however, a plain sheet, no impressed cell-bottoms on it. It was home-made, and I will explain how. My friend had procured a tin can twelve inches deep, twelve inches long, and four wide. He partially filled it with boiling water, and about two inches of melted wax floated on the top. He also had a piece of deal, somewhat larger than the sheets he wished to make. The wood was first soaked in cold water, and was then dipped once or twice into the can, being allowed to cool between each dip. The result was that it had a thin coating of wax at each side. When cool this wax was easily removed from the damp wood, and was cut to the size and shape required and fixed to a frame. In the 'Observatory' hive in the study the bees had only been in for a week, and, as far as I could see, were working out all the cell bottoms correctly. They excavated the sheet to some extent. My friend had a number of hives on his lawn. They were double hives, with an entrance at each side, and the two lots of bees were separated by a sheet of perforated zinc. He thought the bees kept one another warm better in winter. He had no bottom bars to his frames, as in his opinion it involved a considerable waste of room. I did not approve of that, as it weakened the frame very much.

The new life in bee-keeping which seemed to be springing up led me to devote a little more attention to hives. I got a joiner to make me a number of frames, one of which I send. They had at first no saw-cuts along the top bar and sides, but the difficulty of fixing guides for the combs was so great that I since hit upon the plan of making a saw-cut along the top bar and down part of the sides. A screw to prevent the sides splitting was put in each side, as seen.



These frames have been in use about twenty-two years, and for practical purposes are as good as new. They are stronger than modern frames, and I dare say cost me 8*d.* each. I think, when it is necessary to examine a hive, a *strong* frame is an advantage.

In putting in the wax sheets I placed the frame lengthways between my knees, having previously removed the centre screw. I put a screwdriver or wedge at each end, forcing the saw-cut open, and slip in the sheet, and when the centre screw is in again all is firm. I always put the distance pins (brass stair 'eyes') on one side only, as in practice I do not change my frames more than I can help. I also put in wires from top to bottom, one at each end of frame, to keep the sheets straight and firm.

In my next letter I will endeavour to tell you what bee-incidents took place while I resided in Edinburgh during the years 1870 to 1880.—A Bee-keeper, Past and Present.

CHALLENGING.

[418.] Your footnote to No. 409 (p. 512) in last week's *Journal* saves me the trouble of entering minutely into the correspondence between Mr. Rae and myself. In order, however, to leave no false impression in the minds of such of your readers as are interested, I may be allowed a word in reply to the letter headed as above, when my challenge appeared in the *B.B.J.*, and also in the *Galloway Gazette.* Mr. R. wrote asking me to send on a jar of run honey to Mr. Howard, the judge at Castle Douglas show. This I declined to do on the

ground that I knew that gentleman personally, and, considering his trade connexion as an appliance dealer, he might not care to act in the capacity, in case of giving offence to either party. This was my only reason, because I consider Mr. Howard a thoroughly competent judge. Hence my desire the honey should be submitted to perfectly independent parties, viz., the Editors of the bee-papers. This proposal failing to meet with Mr. Rae's approval. I finally named Mr. Woodley, World's End, Newbury, a gentleman unknown to me personally, but a very well-known honey producer and prize winner, and consequently one who should have the confidence of both parties. All these offers Mr. Rae refused, and my second challenge then appeared. On any fair and reasonable terms he may yet propose through the *B.B.J.* I am perfectly willing to trust my sample alongside his, with a neutral judge.—JOHN D. MCNALLY.

MOVING BEES TO HEATHER.

[419.] In your issue of Oct. 16th I notice a letter 394, signed 'Scotch Heather.' As I require to remove my stocks a somewhat similar distance, and also by road, I should like to know how your correspondent goes about it, as my success has been only very indifferent as regards removal. I shall be pleased to hear from your 'Scotch Heather' friend through the columns of your valued *Journal* should he care to favour me.

I also had six stocks at the moors. My best gave me fifty-six pounds of fine super honey, besides leaving sufficient winter stores, and a good second with forty-three pounds; but my average, through loss on removal, is very low, three being *nil*, and the sixth, which was queenless, only a few pounds to the good.—AUGUSTUS.

[We have written to our correspondent, 'Scotch Heather,' drawing his attention to the above.—EDS.]

BEES AND MICROSCOPISTS.

[420.] In the *Bee Journal* of a few weeks ago you announced your attention of giving some practical papers for winter reading, and I think, in reply to a query from a reader, it was said that if sufficient interest was shown you had no objection to include one on 'Mounting Bee Objects for the Microscope." If you would consider the matter, I for one should be glad, as it is a subject on which, to my knowledge, not much has been written.—E. R. BRINDLEY, 214, *Denmark Hill, S.E., 21st October,* 1890.

[It is intended to include a paper on the subject named in the forthcoming series of articles.—EDS.]

REPORT FROM LANCASHIRE.

[421]. No honey this year; just finished feeding three hundredweight of sugar to thirty stocks.

I see in your pages 'S. J.' gives a method of uniting stocks with perforated zinc. If any of your readers wish to try it, I can vouch for it being perfection itself, as I have followed the same method for several years. I use coarse cheese-cloth instead of zinc between the stocks to be joined together, lifting the combs and bees into the top box, and leave them for forty-eight hours before withdrawing the cloth—T. G., *Newton-le-Willows.*

IRISH AND SCOTCH HONEY.

[422.] I intended last week to have written *re* the challenge of Mr. J. D. McNally to pit his sample of extracted honey against the United Kingdom after he had failed to draw Mr. Rae to single combat by his previous challenge. One cannot but admire the pluck of Mr. J. D. McNally in throwing down the gauntlet to us all. I myself cannot enter the contest, as I have cleared off all my best extracted honey this season, but I hope others who generally have some fine samples will accept his very fair offer, and try conclusions with him. I am rather surprised that Mr. Rae has not replied before. As far as I am able to judge, the proposal of Mr. J. D. McNally to abide by the decision of Messrs. W. B. Carr and Cowan *re* the samples submitted is as fair a tribunal as he or both could wish for. If I may make a suggestion, I would mention the name of Mr. J. Hooker, who, I believe, resides in London, and who, I feel sure, would be pleased to act in unison with the gentlemen mentioned before, thus giving a triumvirate of judges in honey that cannot be equalled in Britain to-day.

Since above was penned I notice Mr. Rae has replied (409), and if he had half the confidence in his sample of Scotch honey that Mr. J. D. McNally has in his sample of Irish honey, the battle would have been decided long ago. I do not know either gentleman except by name, but I must reiterate that I consider Mr. McNally in the right *re* judges. Notwithstanding I have every confidence in Mr. J. Howard, whom I know personally, I think it would be best for a new judge or judges to decide which is the best honey of the two in this case, Irish or Scotch. The Editors, in their note, say that the offer has been accepted by the United Kingdom. Now, friend Rae has a chance of taking premier honours, and I trust he will not let the opportunity slip, but, like Bruce, try again.—W. WOODLEY, *World's End, Newbury.*

FLOUR AS A PACIFIER.

[423.] For several years I used scented syrup when uniting bees, but for the last two years I have substituted camphor, placing a small quantity under quilt and on floor-board a few hours before uniting. I found the latter plan the best. Seeing in the *Journal* flour had been successfully used, I tried pea-flour, with no fighting. I believe the latter to be better than wheat-flour, as the bees would use it for pollen.—R. FRENCH, *Leamington, October 20th.*

A BEE-TOUR IN LINCOLNSHIRE.

[424.] On returning from my Irish trip I received a letter from the Hon. Secretary of the Lincolnshire Bee-keepers' Association containing instructions for a fortnight's tour among the bee-keepers of that county, which in fulfilment of a promise I made to Mr. Houghton in June, I commenced on September 3rd, after a rest of three days at home.

I first called upon Mr. Hufton, the secretary of the Cowbit district, but no visits to other members were made. I inspected Mr. Hufton's home apiary and found a number of exceptionally strong stocks, which, in spite of the season experienced, have given a fair return. The takes recorded by Mr. Hufton at his Fen apiary are really extraordinary, and one I should say is among, if it does not exceed, the highest on record. Some idea of the excellence of the district can be formed when I say that one consignment of honey from the Cowbit station was 180 stone.

Spalding was next visited, and a list of bee-keepers was given me by G. Barrell Esq., the district secretary. Beyond the apiaries owned by Mr. Barrell and a neighbour, Mr. Brown, there are few of importance, which is to be wondered at seeing what capital honey-producing crops are grown in the neighbourhood; but I have no doubt as the Association flourishes more interest will be taken in bee-culture here.

On my arrival at Boston I was informed by the District Secretary, Dr. Small, that the members of the Association under his care did not wish to be visited. However, having three days apportioned to Boston and the neighbourhood, I set to work with the assistance of Messrs. Blades and Best to find out the bee-keepers, whether members of the Association or not, and a very interesting round I had. I found a number of well-managed and successful apiaries, the best belonging to W. Garfit, Esq., and Messrs. Best, Blades, and Jackson.

As far as honey-producing crops are concerned, the apiary belonging to Mr. Garfit and managed by Mr. Dolby, is the most favourably situated. It consists of eight bar-frame hives which have yielded about 100 pounds of honey, and could spare another 150 pounds. This year there were within bee-range of this apiary 39 acres of honey-producing crops, besides a quantity of clover in the pastures. The best take recorded up to now from one hive was 122 pounds—71 one-pound sections and 51 pounds of run honey.

Mr. Jackson, who lives near Mr. Dolby, is one of the old school, though being a constant reader of the bee periodicals he keeps well up with the times, and achieves no mean success with his sixteen bar-frame hives.

When visiting Mr. Andrews of Stickney, who has a large but not at present successful apiary, I called at Sisbey, and gave an exhibition of driving before some bee-keepers who had been invited by the Rev. F. Besant to be present.

From Boston I proceeded to Wainfleet, where excellent arrangements for my visit had been made by the District Secretary, Mr. Walker. I was met at the station by this gentleman, who took me to the Hall, the residence of Mr. Walter Martin, a well-known judge at the B. B. K. A. and other shows. Mr. Martin kindly placed a pony and cart at our service, and we drove round the district calling upon the bee-keepers at Croft, Burgh, Brayloft, Firsby, Eastville, and Friskney.

Bee-keeping is in a more advanced state here than in any district I have visited, and no wonder, with Mr. Martin, whose interest in the Association has been so marked, and Mr. Walker, a most successful bee-keeper and thoroughly energetic secretary, always ready to do anything to help on the industry.

No surplus of any consequence is recorded here except by Mr. Walker, whose average from three splendid stocks has been five stone per hive. Last year the three stocks averaged ten stone three pounds per hive. Long hives are here in use, holding from thirty to forty frames, and I was assured that it was useless using any of much smaller capacity, as the yield of honey in favourable seasons is so great.

While driving round this district Mr. Walker invited the bee-keepers, at the request of Mr. and Mrs. Martin, to tea at the Hall at 6.30 in the evening. By that hour a good company had assembled, and ample justice was done to the good things provided. After tea we adjourned for a bee-chat, over a pipe and glass, which lasted till nearly eleven o'clock. Before parting Mr. Martin kindly offered the use of bee-books or journals in his library to any one who cared to read them.

(The conclusion of above Report will appear next week.)

Queries and Replies.

[254.] *Foul Brood.*—May I again ask your kind assistance? Enclosed herewith is a piece of comb, which I fear is attacked with foul brood. I have not seen anything of the kind before, and beg to ask your confirmation of my fears, if it is so. The stock has one of Mr. Benton's queens of 1889. The queen bred well in the summer, and the stores were kept to a very low ebb, as the season here has been very poor indeed—almost as bad as 1888, if not quite. There are very few bees, and they show very little energy. My attention was drawn to the stock by the evident robbing going on, and the slow rate of taking down the food. I shall confine the stock by perforated zinc until I get your kind reply, with the intention of burning the combs and bees immediately if you confirm my fears. I have fed eleven other stocks with best loaf sugar, and put salicylic acid solution in all the food. They are now fed up. Can I adopt any other precaution? If it is foul brood, kindly say whether of a malignant type or no.—W. W.

Reply.—The comb is affected with foul

brood of a bad type. Under all the circumstances you should not hesitate in burning combs, bees, and everything loose about the hive, and if the hive itself be not burned, it must be thoroughly disinfected. Yours is another case which seems to show that foreign bees are subject to a more malignant form of the disease than are the natives, for the sample of comb sent is reeking with it. We are extremely sorry you allowed that hive to be robbed by the other bees, and great watchfulness will be required in spring to guard against an outbreak. As a precaution, spread a pinch of naphthaline on the floor-board of each of the other stocks about once a month and crowd the bees up well, allowing only as many frames as they can cover well. Warmth is a great factor in checking the preliminary stage of the disease. April and May are the months when extra care is required.

[255.] *Bees ejecting Drones in October.*—1. Can you supply me with Nos. 395, 403, 423, 433, *B.B.J.*, and at what price? 2. Standing in front of one of my hives, I observed the bees busily ejecting drones, quite unusual at this time. 3. Is there a queen? If not, can one be procured and introduced successfully at this late season? 4. If suitable and convenient, kindly state the usual method of introducing queens.—M. F., *Glen Urquhart, N.B.*

Reply.—1. Yes; price 5*d.*, including postage. 2. To observe bees ejecting drones is usually a sign of there being a queen present. What is unusual in your case is that drones have been tolerated in the hive so long, and nothing but an examination will explain this. 3. Too late to buy fertile queens and too late to introduce them safely in November. 4. For a simple method of introduction refer to p. 499 of *B.B.J.* for October 16th.

[256.] *Longitudinal Storing v. Tiering.*—I gather from my bee-reading that the workers have a natural tendency to store their honey at the back of the brood cells. This has led me to think that a long hive, with extra frames, would be more agreeable to the bees than compelling them to mount to a chamber above them. I had thought of constructing a hive on this principle, and letting in a sheet of excluder behind the frames allotted to the queen, but a friend who has had more experience in bee-keeping than myself doubts the value of the principle. He informs me that he had placed a hanger with sections at the rear of frames in a hive—also supers on the top—with the result that the bees took to those aloft, and left the former untouched. I should be glad of more information, which I ask you to kindly give me, as I do not want to be disappointed in the event of a more favourable season next year. I intend working for run honey.—Bee-man.

Reply.—Long hives, such as you propose to make, have been made and used for several years past. Opinions differ as to their value, but there is now a general move in favour of tiering hives, especially for extracted honey, and we think your friend's experience is not far wrong. Since it is your intention to work for extracted honey, we advise you to use a hive of ten standard frames for the brood chamber, and shallow surplus chamber six inches deep for storage room.

[257.] 1. *Height of Hive-stands.*—Is eight inches too low for a hive to stand from the ground? 2. Is there any danger of bees being suffocated by being snowed up by drift snow?—Alpha, *Preston.*

Reply.—1. No. So long as the stand raises the hive above the damp ground it is just a matter of choice whether it be six or twelve inches high. 2. No; bees take no harm from being snowed up.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

M. P. Rowe.—*Posting Queens in Cold Weather.*—Queens cannot be sent through post at this season. They would be almost certain to perish through cold in transit.

R. Broadbent, jun.—The honey sent, like a great portion of that gathered late this year, is poor in colour and of no pronounced flavour. It is quite saleable as honey, though only *fair* in quality.

John J. Candy.—Honey sent is of coarse quality, has a good admixture of pollen, and there are signs of fermentation about it. It has also a considerable amount of heather honey in it, and has been apparently pressed from the combs by some process which carried the pollen along with it. Honey of that quality will not sell well.

A Constant Reader.—*Using Old Combs.*—The comb is slightly affected with foul brood, evidently of long standing. It would, therefore, seem certain that the disease has been conveyed in the old combs of last year. It is rarely safe to keep combs from hives where the bees have died for use another year.

NOTICE.—We would ask our correspondents to take notice of the removal of our office, and request them in future to address all communications relating to the literary department, &c., to 'The Editors of the "British Bee Journal," 17 *King William Street, Strand, London. W.C.*'

THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

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Editorial, Notices, &c.

EMINENT BEE-KEEPERS.

No. 28.—THOMAS BATES BLOW.

In the front rank of progressive bee-keepers stands the subject of this notice, T. B. Blow, of Welwyn. Born in 1853 at Welwyn, where his family have resided for many generations, he was educated first at Welwyn, and later privately at Tring, and seemed to have inherited a genius for bee-keeping: for, so far as can be traced, his ancestors have always kept bees, but of course under the old methods. The Blow family being builders and workers in wood, it was only natural that the son, who was destined in after years to considerably distinguish himself in appliance-making, should have his attention turned to what is now termed practical modern bee-keeping. Actual manipulation of bees was commenced at the age of fourteen, when the task of taking up twenty stocks in straw skeps was accomplished by an improved method of applying the sulphur fumes, a pair of common house bellows with a hollow ball in the nozzle containing the burning sulphur being used. The idea, however, of saving the bees' lives had begun to get abroad, and very soon after he made his first wooden hives with his own hands (weight, I hundredweight, double walled all over), and commenced with driven bees with very successful results. These first hives were built on the Woodbury lines—rather massive and cumbrous things—and were for years kept as curiosities and for comparison with the most modern productions. Year by year more interest was taken in bee-keeping, and at this time we find him laying the foundation of his present large business by commencing the manufacture of appliances. Mr. Blow was also one of the first who took the position of regularly engaged bee-expert, and in this capacity he assisted the late Mr. Peel in the active work of organizing the Hertfordshire Association. A most pleasant series of years of work was thus carried on with great satisfaction to both parties, and without a single hitch of any kind, until the death of Mr. Peel in 1887.

THOMAS BATES BLOW.

This engagement was made with him by Mr. Peel more especially to work up the county of Hertfordshire, though in the spare time he actively assisted by means of lectures and visits to bee-keepers in the formation of several other Bee-keeping Associations in various parts of the kingdom. At the end of three years' work in Hertfordshire that association numbered several hundreds of members, and was in such a high state of prosperity that, as stated by Mr. Blow, it was referred to everywhere as the model for other Associations to

work to—the secret of this success, as also stated by Mr. Blow, was the individual attention given to each member, however remote his dwelling-place might be.

During one of these expert tours (which usually occupied six weeks to two months), the first bee-census of a county was taken, the numbers in both bar-frame hives and skeps being noted. A rapidly increasing business, demanding more and more personal attention, combined with the fact that after Mr. Peel had ceased to be connected with the Hertfordshire Association Mr. Blow was not in touch with his successors, and friction arising as to the best methods to be pursued, caused him to resign his position.

Mr. Blow was one of the very few who ever produced one-piece sections in this country, most elaborate machinery being designed by him and put down for this special work. Two years' trial, however, forced the abandonment of this branch of business, owing to the fact that none of our native woods were nearly so suitable as the American basswood, and from that time forth he has always imported in preference to making.

Bee-keepers are indebted to Mr. Blow for many improvements in feeders, section-cases in card and metal, &c., &c.

The bent of Mr. Blow's mind, however, was the study of the bee itself, and Messrs. Benton and Jones having spread the fame of Oriental bees, he determined to verify (or otherwise) the laudatory reports in their favour, and with this view made several journeys into the Mediterranean, the most important of these being into North Africa, Malta, Cyprus, Syria, and Egypt. In Cyprus he procured his principal supply of bees from the range of mountains forming the backbone of the island. These were transferred from their native hives into boxes, whilst those bought in Syria were brought home in their original hives. The journey was both toilsome and expensive, and as the methods for packing were not then so perfect as they are now, considerable numbers died on the journey home, though upwards of one hundred stocks were got to England in safety, and were distributed amongst our best-known bee-keepers.

Later on he had some experience in handling the bees consigned from Cyprus and Syria by Mr. Benton to Mr. Jones in Canada, Mr. Blow's apiary being used as a resting-place on the voyage. Full details of this special Eastern journey were embodied in a paper read before the B.B.K.A., and though his experiences added much to his reputation, we fear they left him poorer in pocket.

One single season's experience was sufficient to convince Mr. Blow that the usefulness of Cyprian and Syrian bees in this country was *nil*, and he promptly abandoned their importation, and although others persistently advocated their advantages, they were ultimately obliged to come to the same conclusion.

His next journey was undertaken with a view to inquire into the merits of the Carniolan bee, which had attracted so much attention in Germany. These bees had been imported into England in small quantities, and their qualities descanted upon by one or two prominent bee-keepers. One month's investigation in Carniola was enough to convince him that all (and more) that had been said in their favour was perfectly true, and from that time to this he has steadily advocated their claims.

In the intervals between journeys, Mr. Blow was increasing his business by attending every show of note, and we may say that he surely received his due meed of honours. He certainly has sufficient medals to fill an ordinary-sized bee-hive.

The subject of the investigation of races of bees being somewhat exhausted, he next undertook a journey into the United States and Canada, with a view of inspecting the American methods of honey-raising. News of the projected trip was rapidly spread by the various bee-papers, and upon his arrival he received (as all bee-keepers do) the warmest welcome from his *confrères* on the American Continent. Amongst those on whom he called were Messrs. A. J. Root, T. G. Newman, D. A. Jones, Dr. Miller, Lewis & Co., and W. T. Falconer & Co. The journey going was rendered particularly pleasant by Mr. Carr's godspeed at Liverpool, and being received at New York by several relatives he had never seen, a branch of the family having settled in New York State three generations ago.

The results of this expedition were contributed to our columns in various articles during its progress, as were also the details of the journey to Carniola; indeed his name to articles of the *B.B.J.* from time to time has generally been attached to matters of fact, rather than to controversial questions. The wisdom of this course will be apparent when it is remembered that, living so near London, Mr. Blow naturally receives visits from prominent bee-keepers holding various views, with whom he is ever ready to discuss the divers moot points which always will arise in connexion with a prospering and growing science.

From quite early years Mr. Blow has been deeply interested in natural history, especially botany, one of his first works published being entitled, *Contributions towards a Flora of the Neighbourhood of Hitchin*. In a recently published *Flora of Hertfordshire*, he is probably the largest contributor after the editor. His large collection of dried British plants is now in the Herbarium of the University of Edinburgh. The *Journal of Botany* had frequent contributions from him, and even the *Flore de l'Ouest de la France* has not escaped contribution from his versatile pen, several new plants having been recorded by him in the provinces of Morbihan and Finisterre in Brittany. For his services in botany he has been elected a Fellow of the Linnean Society, and is frequently present at their meetings, the last occasion being an introduction by him of Mr. Grimshaw, who read a paper before the Society on 'Heredity

and Sex in Bees.' He has also occupied the post of Examiner of Experts for the B.B.K.A.

Though a busy man, as the phrase goes, Mr. Blow has yet found time to attend to local matters, and is one of the Guardians of the Poor for the village in which he lives.

PAYMENT BY DEPOSIT.

When the system of payment by deposit was suggested, on p. 448 of the *B. J.* of September 18th, we thought the idea a good one, and the matter was again referred to in a leader a fortnight later, but nothing was intended beyond establishing a simple method of payment through the office of the *B. J.*, by which bee-keepers might be ensured against loss by unwittingly selling their produce to persons unable or unwilling to pay for the same. It was not anticipated that much interest would be taken in the subject outside the few immediately concerned, but the numerous letters received referring to the matter very plainly showed the need for some such project, and that it was desirable to deal with it without delay. We felt, however, that it would be advisable to elicit a further expression of opinion, and so a few of the communications received were inserted in our columns, only such being selected for publication as were suggestive of still further extending the scope and usefulness of the plan. From these it could be gathered (1) that bee-buying was as unsafe as honey-selling; (2) that articles of small value could not well be dealt with without some modification of the plan; and (3) that it was desirable to include bee-appliances and 'everything advertised in our columns.'

This last suggestion (No. 374, p. 484) ventured into quite a new field, and coming from a manufacturer who, when he writes, usually has 'something to say,' we wondered at so radical a proposal from one in the trade, and how others in the business would view it. Very soon it was apparent that in the opinion of 'others' the idea of 'payment for bee-appliances by deposit was ridiculous, uncalled-for, and altogether impracticable.' There is no mistaking the spirit in which the question is met in the several communications before us (not intended for publication). We betray no confidence, however, by inserting no names. One writer says: 'I personally refuse altogether to have my profits still further reduced by this scheme, and my *trouble* and labour augmented. I unhesitatingly condemn it.' Another says: 'Any person sending a deposit to you for goods from me, kindly return cash and say I will only deal with orders direct. I will not submit to a farthing less than the value of an order when it is satisfactorily executed.' A third dealer writes: 'I am surprised to see you looking favourably on the deposit system for appliances. I cannot see the possibility of its acting, and apart from that it is an unbusinesslike system.'

These few extracts make it clear that there are in the minds of manufacturers grave objections to the proposal as it affects them. So far as our personal opinion goes, and our 'looking favourably' on this part of the plan, a reference to the footnote to 374 will show that we did not expect that it would be taken advantage of to any great extent, but that the *option* might be given of payment by deposit to meet special cases.

We still adhere to this view, and if dealers would insert a clause in their price lists to that effect, it would remove the causes of complaint of which so much was heard a month or two ago. One modification of the 'conditions' printed in *B. J.* of October 16th seems, however, necessary, and we thank the gentleman who calls attention to it. He says: 'While utterly refusing to have such trouble added to my transactions as would be involved in the deposit system, I would call your attention to clause 6 in the printed conditions; *no dealer would send goods at his own risk*, as it would cause endless disputes between the railway companies, as *the payer of the carriage has to claim for damage in transit.*' This clause will be altered in the permanent heading, and at the same time we desire it to be understood that our object is to facilitate—not to obstruct—business between buyers and sellers. With this in view, any suggestion likely to remove friction between the parties will be considered, and, if needs be, acted on; but it must be remembered that the scheme is still in its infancy, and, like most schemes, it will no doubt be improved upon as experience is gained; but if fairly tried it must be advantageous in meeting special cases, as it at once removes any risk between parties entirely unknown to each other. Moreover, it will tend to establish confidence between the parties at the outset, and when the treatment on both sides is satisfactory, will render payment by deposit no longer necessary.

BRITISH BEE-KEEPERS' ASSOCIATION.

CONVERSAZIONE.

(*Continued from page* 520.)

Several questions on the foregoing were then asked of Mr. Cowan, the interlocutors being Messrs. Hooker, Meggy, Garratt, Grimshaw, and Jonas.

Mr. Grimshaw said it was a curious fact that bees all over the world seemed to prefer Sunday for swarming. He did not attribute that to the sound of bells. There were no bells to be heard by his bees, the only music they could listen to being that produced by the Salvation Army, which was not of a soothing character. He explained the fact that hives when placed under trees were warmer in the cold weather, by saying that the branches of the trees broke up the heat rays emitted by the earth, and prevented them from going off into space; whilst in summer hives so placed were cooler, the branches sheltering them from the sun's rays. Thus a comparatively equable temperature was maintained, and early brood-rearing stimulated. He was struck by Mr. Cowan's remark concerning the resemblance to Madeira of some of the honey wine. He (Mr. Grimshaw) remembered tasting fifteen or twenty samples of mead made by Mr. Blow, some of which he thought to be like the flavour of Madeira.

Mr. Jonas thought the bells could not account for the swarming on Sundays, else why was swarmings not equally prevalent on saints' days in Roman Catholic countries?

In reply to Mr. Badcock, Mr. Grimshaw said that no matter what was the aspect of his hives, they would be warmer if placed under trees, for the reason he had given.

Mr. Cowan, in reply to the numerous questions asked, said the bees he had seen were of different kinds, the common black bee and Carniolans being most found. In one or two places he had met with Cyprians. The gentleman whom he had described as very reticent had some Cyprians, and Cyprians crossed with common black bees, perfectly quiet; thereby disturbing English notions concerning hybrids. Italian bees did not seem to get on so well as Carniolans or even common black bees. He could not remember a recipe for making the wine described, but he had several in his possession, and, if of interest, would make them known in the *B. B. J.* No doubt the supply of honey was increasing very much in some of the parts he had referred to; still it would be a very long time before that produce would affect English markets, especially as a ready sale could be obtained in Paris at the remunerative price of 9½*d.* to 10*d.* per pound for all the honey they could send from Savoie. Flavour varied very much even in sainfoin honey, according to the soil and the altitude. Of course the flowers varied at different altitudes, and thus in mountainous regions many different-flavoured kinds of honey were produced. He recollected tasting some splendid honey from a place called Avanchez, which granulated like butter, and had a distinct almond flavour. Another sample suggested otto of roses. [Mr. Grimshaw: Probably owing to the prevalence of wild geraniums.] In different parts the flavour and colour differed. With regard to hives being placed under trees, he thought it would be interesting for the meeting to know that M. de Layens had a small apiary placed in a forest surrounded by trees, where the sun never penetrated, and yet he (M. de Layens) obtained his best honey therefrom, owing as he believed to the warmth engendered by the shelter. Besides, bees under those conditions were not apt to swarm. While talking on the subject, he would like to mention a circumstance which came under his notice in the canton of Neuchatel, where a bee-keeper, M. Woiblet, whom some might know by name from his connexion with the embedding spur, and who was engaged in the watchmaking business—his work being the setting of the jewels, which no doubt accounted for his dexterity in making small and delicate instruments—had a collection of hives in a sort of summer-house made of lattice-work, which was covered with grape-vines. There was no alighting-board, but the bees had no difficulty in finding their way through the vine leaves. A large quantity of honey had been obtained from these hives, and no swarming had occurred in the house for some years. A curious fact, too, was that the hives could be changed about in the summer-house, yet no fighting took place nor did the bees lose their way.

Mr. Hooker asked if Mr. Cowan thought the bee-keeping he had seen, or that in America, was in advance of ours or the reverse.

Mr. Hooker's question was a difficult one to answer, but he (Mr. Cowan) was of opinion that although in America bee-keeping was cultivated on a much larger scale than in England, the apiculturists of Britain were quite as advanced as those of the United States, and in some respects more so. As regarded the Continental places he had spoken of, bee-keeping was in its infancy, but rapid strides are being made, because the inhabitants had commenced with good appliances and had the advantage of working with the knowledge which experiment and observation had gained up to the present. Complaints had been made about the adulterated honey put on the tables of the hotels in Switzerland. He thought the blame of this must be put on the shoulders of English tourists, who had shown an extraordinary partiality for glucose in preference to the genuine article. He had been told this, and himself was an eye-witness of the fact. Of course hotel-keepers would provide what they could sell best, and thus the adulterated honey from the large manufactory at Rapperschwyl had hitherto been much in request. However, a law now existed in Switzerland which prohibited the makers of the spurious preparation from calling it 'honey,' but obliging them to call it 'table syrup,' and he believed that at present most of the shops

kept both the real honey and the manufactured imitation.

The Chairman asked whether there existed in the districts which Mr. Cowan had visited associations similar to the English county ones; also, whether the bee-keepers there had the advantage of an organ like the *B.B.J.*, and, if not, whether it would not be a good thing were some one to translate copies of the paper and send them over. He quite acknowledged the value of placing rotten wood on or near the hives to attract wasps. He was glad to hear of the cordial reception Mr. Cowan had met with wherever he went, and fully believed in the fraternity of bee-keepers. He himself happened to be travelling three years ago between Edinburgh and Inverness, and being compelled to wait some time at the station of Struan, he and a friend alighted from the train and inspected about fifty hives owned by the station-master there, who was a very successful bee-keeper, and delighted to see them. They opened several hives without receiving a sting. With regard to bees drinking, he had no doubt many were aware that they frequently got drunk, bumble-bees especially, their intoxicating liquor being derived from single dahlias and hollyhocks. In that condition they could not fly home, but rolled about on the ground or elsewhere, moving only a leg by way of protest if touched. The letters of Huber could not fail to be extremely interesting, whether they contained useful knowledge or not, and he would consider it a great favour if allowed to look at them. Mr. Cowan's address had given him the greatest pleasure, and all present were highly indebted to that gentleman.

Mr. Garratt moved, and Mr. Jonas seconded, a vote of thanks to Mr. Cowan, which was assed amid cheering.

Mr. Cowan acknowledged with thanks the compliment paid him, regretting that his remarks were somewhat disjointed, because, not thinking he would be called on to speak, he had not prepared himself. However, that defect he would remedy in the columns of the *B.B.J.*, where more practical details about bee-keeping in the French provinces would be entered upon. The associations in France were not on the same plan as those in England. In Switzerland to a certain extent they were, but in France a great difference of opinion prevailed on the management of associations. One of the leading bee-keepers, M. Hamet, former editor of *L'Apiculteur*, was too conservative in his views, he having a strong objection to frame hives. The societies in the North of France worked principally on his plan, and Gatmars or Bauce bee-keepers used straw and inverted straw hives, the bees being allowed to perish every autumn owing to the very short harvest, as it did not pay to keep them. In the spring they purchased swarms for the sainfoin harvest. On the other hand, M. de Layens had been working hard in favour of the frame hives, which were growing in favour. In Savoie, in one small village, there were about 200 frame to 300 straw hives. Formerly bee-keeping there was much more prevalent than of late years; in fact, in almost every dwelling there was evidence that beehives had been kept at some time or other; owing, however, to foul brood and other depressing causes the industry had become paralysed, but was now making a fresh start. There is no need for the *B. B. J.*, the *Revue Internationale* doing its work efficiently. The Chairman had spoken of bee-keeping in Japan. It would be very desirable and interesting to know more concerning the pursuit in that country. He (Mr. Cowan) and his party had certainly been received everywhere with great cordiality, and he would always look back with pleasure to the time spent amongst the bee-keepers of Savoie. Mr. Arpin had a hive affected with foul brood at Bourg St. Maurice. Upon examination thereof they found traces of the pest, and immediately recommended the naphthaline cure, which was applied, and the disease had, he believed, since disappeared. Another bee-keeper they had encountered had foul brood in an apiary a little higher up. He had tried naphthaline without success. Foul brood was not so general there as in England, but during the present year it had been more rife than usual.

Mr. Hooker said that he had heard recently from Auckland (New Zealand) of the prevalence of foul brood there, which had compelled many bee-keepers to completely destroy their stocks. In New Zealand that was a small matter, seeing that swarms could be bought at from 1*s.* to 10*s.* a-piece.

Mr. Grimshaw and the Chairman agreed that total destruction was the only certain remedy for foul brood.

Mr. Badcock thought the same, although that sort of cure was a most expensive one. He could not but feel that it would be impossible to over-estimate the service rendered to bee-keeping by any one who discovered a reliable cure. He had tried naphthaline and formic acid, at the same time re-queening, with but indifferent success. He was now using a solution, the constituents of which he did not know, supplied to him by a gentleman; and if the remedy proved successful, he would communicate further particulars about it.

The proceedings terminated with a vote of thanks to the Chairman, moved by Mr. Cowan and seconded by Mr. Hooker, and briefly acknowledged.

SELLING HONEY.

Efforts have been made to establish a safe and reliable market for honey by gentlemen connected with bee associations. Among others, it is hoped that the large co-operative societies will ere long take the matter up with spirit, and now we are very pleased to notice, through an advertisement in this issue, that an eminent London firm have expressed willigness to have samples of good British honey submitted to them for purchase.

Correspondence.

The Editors do not hold themselves responsible for the opinions expressed by correspondents. No notice will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITORS of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see* 1st *page of Advertisements.*)

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

EXPERIENCES DURING FORTY YEARS.

[425.] In my last letter (No. 417, p. 524), I omitted to mention some little incidents which took place between 1868 and 1870. I had a small number of bees inside an observatory hive, which was placed at a window. The hive held two frames, one above the other. The greater part of the brood was in the lower comb, and I took out the upper comb in order to replace it with a brood comb from a strong hive outside. After taking out the brood comb from the outside hive, I examined it thoroughly to see if the queen was on it. I could not find her, and as there were many bees on it, and it was a warm day, I put it into a wooden shed, which had a few holes in it, admitting light, in order that some of the bees could leave it and fly home. I left it there about fifteen minutes, and on my return found a considerable number of bees on it, mostly young however. I could see no queen, and I placed it in the observatory hive. I had no sooner put it into its place, and screwed up my observatory hive, than I discovered my mistake—a queen was on it. I was obliged to meet a train, and had no time to rectify it, but I stayed a few minutes. The bees encased her. The ball was about the size of a big half-walnut. The bees were greatly excited. I saw nothing of the queen but a hind leg, which was quivering; she was evidently on her back against the comb. The lawful queen was running about, every now and then trying to get into the ball of seething bees. They paid no attention to her efforts, and she had always to retire, and as long as I remained the captive's hind leg quivered. There is no mistaking a queen's hind leg. It has no pocket for pollen, and it is generally lighter in colour than the legs of workers. On my return after a few hours all was quiet, and the dead queen was thrown out. There was no fighting among the bees, and the brood in the comb soon hatched. The outside hive soon, and very unexpectedly, swarmed a second time. It had got over the division-wall of my garden, and had settled in a hedge. A cabman came past: he rang my bell, and in great excitement helped me to hive it. No doubt he thought of the happy days when he was young, and hived bees in his home garden.

Another incident was as follows. I had constructed an observatory hive for an invalid relative in the south of England. A small Ligurian swarm was put into it. I was living at Edinburgh at the time, and was told that the hive was queenless. I consulted my friend, the late Mr. Tower, and as I was about to go south, he gave me an artificial swarm. These were put into a box, well ventilated, and I took it with me. I had to stay in London all night, and for safety I put the box and bees into my bedroom. I scarcely got any sleep. The bees moaned and groaned all night; for a moment they would be silent, but they burst out louder and louder, and it was painful to hear. The sound was pitched much higher than the ordinary hum, and I felt sure something was wrong. When I got to my destination I set them at liberty at an open window in the immediate vicinity of the observatory hive. They flew out in great numbers, and went into the observatory hive without any fighting, and there was a queen there after all, but I could find no queen among the dead bees in the travelling box. I shall never forget the night I spent with my bees.

Another incident was as follows. A swarm had settled on a bush, and I hived it. A bee-keeper can generally tell very soon if the queen is there, but for a short time I was deceived. They began, however, with this hum, which I so well remembered. I felt sure the queen was not there. I looked about, and found a small lot of bees on the ground. I got the queen into a small box, and opened it opposite the hive entrance. She rushed in and *in one moment* the sound was changed to one of rejoicing. It was as if a shock of electricity had passed through them. They could not see her, and I doubt if they could smell her. Perhaps you, Mr. Editor, can explain how the queen's entrance so suddenly became known to all.—A BEE-KEEPER, PAST AND PRESENT.

[We should attribute this to their keen sense of smell, which is much more highly developed than in human beings.—EDS.]

PROPOSED COLOURED PLATES, ETC.

[426.] I was glad to see the honest old face of John Walton looking at me when I opened the *Journal* on Thursday. What a pity there is not a John Walton in every village in England! There would not be much honey left ungathered then.

If flour has been used as a pacifier of bees for so long, then what a shame it has not been made public before. Think of the millions of little lives it might have saved. Eight years ago it was most pitiable to see the heaps of dead bees in front of my hives, to which driven bees had been added, to strengthen (?) them. After a time I joined them successfully by shaking them off the frames, and running both

the stock and driven bees in at the entrance, scenting with peppermint at the same time: still it was a big job, especially on cold nights when they would positively refuse to go in. If I had only known of the 'flour dodge' then, what stings it would have saved me! With regard to the proposed coloured plate of species of bees, by all means let us have one, and at once, so that it can be bound up with the present volume. I shall be glad to subscribe, and would suggest that drawings be life-size, and most carefully coloured, the difference in the several races being so slight. Take the Carniolan and British for example, the former only having a lighter pubescence, chiefly on the thorax, which can be seen by placing them side by side. I do not consider these two are separate species, but only a variety. We see the same thing in Lepidoptera, the Marsh Knight (*Cœnonympha Davus*), and again the Brown Argus (*Lycœna Medon*) butterflies are larger and differently marked in widely separated localities, and some have actually classed them as separate species. The reason, to my mind, is not far to seek. Cut off from one another ages ago by high mountain ranges, they have developed under different conditions, both as regards climate and (probably) food. If this is so, then why should we—simply because one has black hair and the other brown—class them as two separate races?

Another thing that always puzzles me is this. How does the young queen-grub manage to keep from tumbling out of the queen-cell, which, as every one knows, is built perpendicularly? Mr. Cheshire says that the young grub 'adheres by the dorsum to the wet royal jelly,' but what about the said grub when she has consumed all of it? Has she feet like an ordinary caterpillar, capable of holding on to the side of the cell, or does a worker-bee continually keep her propped up on its head? The nest of a wasp is still more mystifying, for every individual must want its prop! Will Mr. Cheshire or some one kindly enlighten me?

I noticed a field in the distance, yellow with the blossom of the wild mustard or 'charlock' the other day. Perhaps Mr. Geo. Corbyn's bees have been getting pollen and honey from this source.—H. J. S.

COLOURED PLATES OF TYPICAL BEES.

[427.] To have the various kinds of bees brought together and represented on one page, life-size and in colours (the queen, worker, and drone), would be a very great boon to bee-keepers: those especially who are interested in them. I beg to suggest that each kind be arranged with name immediately underneath on a single page of toned paper and put into each copy of the *British Bee Journal*, charging extra, if necessary, for that issue. This plate, though only the size of the journal, might be framed and suspended either in the bee-house or library. The characteristics of each could be given in succeeding numbers: and the bee-keeper would then have a full description and plate to which he could easily refer at any time. —J.

[Without being positively decided as to the form the coloured plate should take, our idea, if carried out at all, was to have say five varieties of bees shown—pure races only—the queen, drone, and worker of each kind being depicted,—Eds.]

FORTY YEARS' FREEDOM FROM FOUL BROOD.

[428.] Referring to foul brood, I have been a bee-keeper for nearly or quite forty years, having bought a swarm when a youth, and kept them in skeps till the last few years, and I have never yet had foul brood among my bees, and, in fact, have never seen it. My bees have done fairly well for the season, but not so well as last year, though better than in 1888. In the autumn of that year I fed up twenty-one colonies, and they came out well in 1889, and gave me a return of about ten hundredweight that year. I had this season the same number of stocks, and I got about five hundredweight, which is better than many have done. My apiary now consists of fourteen bar-frame hives, the remainder being straw skeps. I work on the profit principle, and have made my own hives out of tea-chests or any boxes suitable. I let my bees do their own re-queening, and seldom lose a stock from queenlessness, only losing one in that way this autumn, previous to which it must be twelve or fourteen years since I lost one before. All my information is obtained from your valuable *Journal* and my own practical experience, which so far has kept me right.—Jesse Lambert, *Croughton*.

CHALLENGING.

[429.] Just a word of explanation anent the challenge affair (McNally *v.* W. Rae). My letter, from which you printed an extract on p. 512 of the *B. B. J.* of October 23rd, was written in reply to the enclosed challenge, which appeared in the *Galloway Gazette*:—

'To the Editor of the "Galloway Gazette."

'Sir,—Owing to some delay on the part of the Railway Company, my exhibits did not reach the above show until after the judges had made their awards. Since then it has been hinted to me by several parties who were privileged to see the show, that Irish honey would not have figured in the prize list on said occasion. *As I am not disposed to accept this statement without a fair test*, I now make the following offer, viz:—To stage three one-pound jars of extracted honey, and six one-pound sections of comb honey, equal, if not superior, to anything staged at Castle Douglas Show, for the sum of two guineas. These can either be competed for singly or combined, the losing party to hand the said amount over to some charitable institution in Scotland. This offer holds good for one month from this date, and will be open to the world. Intending competitors will please send their name and address to the

Editor of the *Galloway Gazette*, who will be entrusted with the appointing of competent judges, and arranging the place and date for the competition to take place.—I am, &c., JOHN D. MCNALLY, *Laurencetown, Co. Down, September 10th*, 1890.'

You will notice that Mr. McNally would like the *same conditions* that he unfortunately *missed* at Castle Douglas Show. It was these conditions I offered him, giving him the chance to win back the first prize, that he seems to think he had missed. The same conditions were:—Mr. Howard judge, and the run honey that took the prize. As already stated to Mr. McNally, I now repeat: 'It would be a bad precedent for future shows' to have our honey, after receiving the judge's award, shown against the produce of grumblers with a change of judges *after* the show. I consider that my offer to run the chance of losing what I had already won simply to satisfy Mr. McN. was a very fair acceptance of his challenge. I did not see the challenge in the *B. B. J.*, but was assured that it was couched in the same bombastic language as the enclosed. I do not write this for publication unless you think fit to use it. I will send Mr. McNally's letters if you desire them. Many thanks for publishing the 'refutation,' and I trust you will see by this that I was trying to meet Mr. McN. in a clear fight had he only come forward fairly. —WALTER RAE, *Dalbeattie, October 27th*.

CHALLENGING.

[430.] What a pity that your correpondent, Mr. J. D. McNally, did not issue his 'challenge' earlier in the season. He would then have had ample opportunities for trying conclusions against Scotch honey. He may, however, rest assured that if he desires this gratification another year, and will intimate his challenge in due time on fair and legitimate lines, he will then bring out foemen worthy of his steel. As a Scotch bee-keeper, I much regret that I cannot enter the contest this year, being in exactly the same position as Mr. W. Woodley in having cleared off all my best honey previous to the challenge being published. It seems to me altogether unreasonable to issue challenges so late in the year, seeing that the best Scotch bee-keepers have no difficuly in selling off their honey crop early in the season at a higher price than any honey ever produced in Ireland, or even England, a fact which proves that Scotch honey-producers need not fear to enter any national contest. I understand that for a number of years a prize of 40*s.* has been offered at the Castle Douglas show for the best sample of clover honey, *open to the world*. This class has brought competitors from all quarters, and, as far as I am aware, in every instance this honour has been gained by a Scotchman. No other honey show in Britain affords a fairer test. The date of the show is suited for all districts, neither too late nor too early. The entries are small, only three one-pound jars of honey, and the prizes considerable. The town of Castle Douglas is also a good centre for bee-keepers from all parts of the United Kingdom. The prize-winner at the last show, Mr. Walter Rae, is to be congratulated on the high position then gained with his honey, and until Mr. J. D. McNally, or some other Irish gentleman, wrests that honour from Mr. Rae, he is justly entitled to the claim of being 'champion of the world.'—A SCOTCH BEE-KEEPER.

[The dispute between Mr. Rae and Mr. McNally must now close so far as the *B. B. J.* is concerned. Both gentlemen have had an equal 'say,' and the matter may now be left for readers to form their own opinion; and while assuring its promoters that we heartily wish success to the Castle Douglas show for all time to come, would remind our correspondents that it is just possible to attach too much importance to it, and when it comes to the prize-winner at that show being dubbed 'champion of the world,' it is surely time to close the present correspondence, and allow further reference to it, as well as to the subject of 'challenging' generally, to stand over till next year.—EDS.]

ABOUT EXTRACTORS.

[431.] I should much like to make some inquiries through your columns respecting extractors. I hear a great deal about 'gear,' and wonder what are the advantages attached to it? Would some one kindly reply to my query, and explain, in a clear, lucid style, the whys and wherefores? A 'guinea extractor' is not a serious outlay even in a small apiary, but the 'guinea' by no means sees you through your purchase when 5*s.* is added for a cover, and another 7*s.* 6*d.* at least for gearing; therefore I venture to ask for the said benefits, ease, &c., supposed to accrue by such gear. Then there are various kinds, and without asking for names I must admit that hints as to whether cog or other sorts are the best would be to me invaluable. I am requested by other small apiarians to write the above. They unite with me in asking for information.—BEE-KAY.

[Any inquiry correspondents may desire to make through our query and reply department will be replied to by the Editor. As, however, the request in the above communication is to have the 'whys and wherefores' of the various forms of extractors pointed out, the question in its wide sense could only be answered by each manufacturer detailing the excellencies, &c., of his own special machine. This, we need hardly point out, is a form of free advertisement which our friends the manufacturers themselves will be the first to admit is hardly reasonable. Therefore, as being entirely disinterested, we may be allowed to say—1. The extractor referred to is quite complete at the price stated; *but*, if the purchaser desires certain 'extras,' of course they must be paid for, just as if it was desired to have a machine which would extract four combs at once instead of two. 2. There is so much difference of opinion regarding cog-gearing that we know of bee-keepers who would as readily pay the 7*s.* 6*d.* to have the gearing removed as others would to have it attached, so it resolves itself into the old saying of 'paying your money and taking your choice.' This is really all there is in it. The same may be said of the cover.

Some persons are very natty and neat in their methods; don't want their clothes splashed with honey, and like to have the means of covering the machine and its contents to keep them free from dust. Others would throw a clean cloth over the extractor when not in use, and save the extra 5*s*. We make this somewhat lengthy reply seeing the letter of 'Bee-Kay' represents the views of several apiarians, and think the case cannot be put in a more 'lucid style.'—EDS.]

HONEY CHALLENGE—IRISH *VERSUS* SCOTCH.

[432.] The above, on the part of Mr. McNally, arose from the fact that the Railway Company did not deliver his honey in time for competition on the Castle Douglas show-board. Had the honey been staged as intended, it would have taken its chance along with the rest of the exhibits; therefore this position of things gave rise to the challenge. Bearing this in mind, I would ask, Why should Mr. McNally insist on bringing a new element by introducing a change of judges? It seems to me as if the correctness of my award was questioned, or why should there be any objection to my deciding on the merits of the respective honeys, as I would have done had Mr. McNally's exhibit arrived in time? My personal knowledge of any man will never add to or detract from the flavour of his honey, neither would my business chances be studied in the least degree. If the latter had ever been so with me, I certainly would never have taken the office of judge at any show, for there one stands the chance of giving offence to a larger number than when single combat only is at issue. It is my pride as a manufacturer of appliances that I am able (getting my bread and cheese in another direction) to give cheap advice to all; and I often go so far as to tell customers—beginners and others—to keep their money in their pockets till personal experience warrants them in a further outlay than a modest start or the contemplated extension of an apiary, and maybe many who read these lines will verify what I say. Such being the case, is it not far from me to study offence in trade when doing my duty as a judge? and as Mr. McNally has honoured me with his opinion of my thorough competence in that capacity, I wish him also to understand that I have been, and still am, ready for further self-sacrifice in forwarding the interests of bee-keeping by fearlessly and conscientiously doing what I consider right.

But to return to the more immediate point. It is impossible for two or more judges in close competition of honey to judge alike, this being the case upon the merits of Castle Douglas honours. Mr. Rae was asked to do himself an injustice by submitting to any judge's opinion other than the one who acted at the show in question, for any reasonable man will admit it but just and fair to afterwards place honey for award under the same conditions as those which gave rise to the challenge.

When at Castle Douglas, 'mine hoste,' Mr. W. Blackwood (hon. sec. of the show), gave me three outings, taking me to all the 'bee-lads' of the country-side. Dalbeattie was visited in our last outing. It was then Mr. Rae gave his visitors his prize honey, and I should judge the bottle I brought away is the only one left, and thinking it very probable such was the case, when Mr. McNally's challenge (clipped from the *Galloway Gazette*) reached me from Mr. Rae, asking advice on the matter, I told him if Mr. McNally was not content to *now* have the judgment he would have had at Castle Douglas by sending his sample to me, he (Mr. Rae) must let the matter stop where it was. However, I think that as Mr. McNally has now got away from the more immediate Castle Douglas show, and has challenged in another fair and open field, that there will be no harm to Mr. Rae in my sending two jars of honey to be compared and judged by the editors with Mr. McNally's. One jar will be the Castle Douglas first-prize run honey, the other extracted from comb honey, I believe given me by Mr. Thompson, of Dalbeattie, and after the *B. J.* editors have given their verdict, maybe Mr. McNally will not mind a jar of his honey being returned to me with those I sent, as I still am open to learn more *re* honey judging.—JOHN H. HOWARD.

PREVENTING SWARMS.

[433.] Referring to the suggestion (398 on p. 502), and not seeing any answer to it, I may say that I have been a large keeper of bees for many years, and my orchard apiary is situated in an isolated spot with very high ash-trees close to it, where, if a swarm clustered, it would be out of reach. My public duties also cause me to be away during the day. Yet I do not consider it necessary to have any one to look after the swarms since I adopted the twenty-frame hive, which I find, from practical experience, to be best, not only for preventing swarms, but for utility and economy. I have tried nearly every kind of hive, both storifying and longitudinal, and have them now. I put ten frames for the brood nest and a dummy with excluder zinc an inch wide at the bottom of it the whole width of the hive. I then add empty frames behind as required, taking care to insert others just before those are filled, and putting the empty ones next the brood nest. If Mr. Savory and others like myself who are away from their apiaries during the day, 'and sometimes have little time at night,' would adopt this plan, or those tried by me and detailed in No. 335, September 11th, 1890, and No. 2302, September 19th, 1889, they would not have one swarm from fifty stocks, providing they kept plenty of frames in the hives. They need not trouble to cut out queen-cells or disturb the brood nest, causing chilled brood, which is the forerunner of foul brood; many a novice does the latter by putting a box of frames or a large

section crate badly packed and covered over the brood nest too soon, and cold weather setting in.—ROBT. THORPE, *Swineshead, Lincolns.*

[The suggestion referred to was made in response to our request that readers would favour us with their opinion. It was not replied to because, along with other suggestions, it will be dealt with in due course when the forthcoming 'papers' appear.

With regard to the prevention of swarming, there is no infallible method, though it may be minimised by giving timely room, whatever form of hive be used. It seems as if long hives were peculiarly adapted for bee-keeping in Lincolnshire; we very much doubt, however, if bee keepers elsewhere will favour the longitudinal method of storing surplus. The stream is too surely flowing in the direction of 'tiering' as best suited for general use, and our esteemed Lincolnshire correspondent cannot 'mop it back that way,' because his own predilections are so strongly in favour of the 'long idea' hive. Our view would be to use the hive found most suited for the district in which it is worked; and it is known that Lincolnshire is quite remarkable for its peculiar bee-forage.—EDS.]

APICULTURAL ITEMS.

[434.] Replying to your foot-note on page 511, anent my 'differing from most folks,' this difference is more apparent than real. I am not in the habit of telling every one I meet that they will find the road quite safe ahead if I knew of a dangerous part. So, if you will please let me have my own opinion, and allow me to point out what I consider *errors*, I will freely grant the same rights to all others. Time will prove who is correct.

You differ with me as to markings on cross-bred bees, or *appear to do so.* Now, while I do not claim 'to tell with certainty the *exact* combination or cross which has produced the markings on specimens of hybrid bees,' I do claim to be able to tell with certainty if I have the whole stock of bees before me, or even a handful taken promiscuously from it. You appear to have misconstrued my meaning by saying 'specimens' of hybrid bees, whereas I said 'samples.' It is well known that 'crosses' *sport*: some *specimens* being like either parent, while others seem a blending of both. Again, the 'blending' may incline in either direction, hence my remark that, if thoroughly done, the result would 'be a great picture-book.' Of course you may disbelieve that I can tell what races the blood of a stock of bees may be composed of, but as long as you will allow me to make such a claim I will freely allow you to disbelieve me.—A HALLAMSHIRE BEE-KEEPER.

[We do not think it necessary to add anything to the foot-note referred to on page 511, preferring that readers who are interested in the matter may read the letter and our remarks thereon, and form their own conclusions. Our correspondent must forgive us for saying that the comments, &c., he makes on the merits of Punic bees—coming from himself—are really matter for our advertisement pages, and have been passed over in consequence. —EDS.]

BEE-READING FOR WINTER.

[435.] I have been very much interested in the articles appearing in the *B. J.* for some weeks past. I may say that I have tried with success the 'flour dodge,' and have not the least doubt but much good will be derived from the papers promised to the readers of the *B. J.* during the winter months. I have met with a deal of opposition from gardeners and small fruit-growers in this locality, and if the suggestions named by many of your subscribers could be made practical use of I have no doubt but a great amount of good would accrue from them. I am sure it would be quite a pleasure, so far as I am concerned, to make a more intimate acquaintance with our little friend, the bee; and if it were possible to put the suggestion of 'R.' into use many bee-keepers would be benefited by it, and I think no true lover of bees would grumble to pay the increase in the price of the *B. B. J.* the alteration would necessitate. I refer to 380, of October 9th, 1890, and I am positive that a series of articles showing how amateurs may successfully mount the parts of bees for the microscope would be a great use in helping them to give a complete and effective answer to such grumblers as reside in my own district, and from whom we have at times a deal to put up with. If you could arrange for a series of articles on the best modes of making slides for magic lanterns they would be very useful, and would enable many persons to give a practical lesson to those who have so much to say about bees damaging fruit, &c.—P. JOWETT, *Bingley.*

[Every suggestion made by correspondents will receive careful consideration, and, where useful, will, as far as possible, be carried out.—EDS.]

A BEE-TOUR IN LINCOLNSHIRE.

(*Concluded from p.* 527.)

[436.] Grimsby was next visited, but owing to absence from home of the District Secretary I had nothing to do. I therefore stayed the night and then went on to Caistor. This visit was to me of peculiar interest because it was when I went to reside with Mr. Winter, as pupil teacher twenty years ago, that I got my first lesson in the humane system of bee-keeping. Mr. Winter commenced bee-keeping thirty years ago, and from the first he took his surplus by driving. Mr. Winter was the first here to invest in a bar-frame hive, though he quickly decided to return to the system of skeps and boxes, as being sufficiently advanced for him. This original hive is now in the apiary of Mr. Percy Taylor, the Association auditor, where the modern system is carried out to perfection, Mr. Taylor being an advanced bee-keeper of several years' experience. While at Caistor I went on a driving expedition with Mr. C. Ainger to Mr. Pepper's, of Rothwell, where we took up five stocks in skeps, the bees of which we carried off as our share of the spoil, and united to Mr. Taylor's stocks the next morning.

Mr. Ainger has taken up bee-keeping this season, though he has been preparing by reading bee-literature for some time, and a greater enthusiast I did not find in my travels. Knowing him well I feel sure that the enthusiasm will last, and if he will act as district secretary the interests of the Association will be well looked after.

At Market Rasen bee-keeping is very much on the decline. This is, no doubt, in great measure due to the ardour of the bee-keepers being damped by recent unfavourable seasons, the season of 1888 particularly having had to my knowledge disastrous effects. The following particulars I gathered when visiting my relatives in 1889. One bee-keeper, who was recommended by me to feed well and quickly the previous autumn, neglected to do so, with the result that he had only one stock alive in a bar-frame hive, twenty-five stocks in bar-frame hives and one in a skep having died: another out of an apiary of seventeen stocks lost twelve bar-frame hives and two skeps. One very practical and successful bee-keeper, Mr. Rands, of Middle Rasen, I had not time to call upon.

I next visited Gerard J. Young, Esq., of Cleaby House, near Market Rasen. Mr. Young was, I believe, the first to introduce the movable-comb hive twelve years ago, and he is probably the most successful bee-keeper in the district. The average yield from hives which have given any surplus was forty pounds. Mr. Young is a great believer in the superior advantages of the long hive, and a very remarkable one I found in use. It was built along one side of a brick bee-house from front to back, and at a convenient height, so that when the lids were on it formed a long shelf or table. The bottom and sides of this unique domicile would contain at the least about fifty frames. I found a stock had not only wintered well but covered and stored in thirty frames, from several of which I assisted to extract a nice quality clover honey.

After luncheon Mr. Young drove me to Tealby, where an examination was made of two stocks belonging to the Rev. S. Lewin, which were in capital condition, and will doubtless winter well.

At Lincoln I had only time to make a few calls in company with the District Secretary, Mr. J. Emerson. Short though my stay was I had ample time to find out that the bee-keepers in and around Lincoln are second to none, and that the yield of honey is ample and the quality good is proved by the fact that no mean share of prizes for size and quality of exhibits has fallen to the bee-keepers of the district.

My last stay was at Louth, where the Secretary of the Association, Mr. J. H. Houghton, F.R.G.S., and Mr. H. O. Smith, a capital bee-keeper and ardent worker on behalf of the Association, live. Shortly after my arrival I accompanied Mr. Smith and other bee-keepers to have a look round his apiary, which is delightfully situated among choice pyramid fruit-trees at the rear of his residence, nearly on the highest point of the town.

At the close of our inspection we discussed the merits of a substantial repast Mrs. Smith had kindly provided. The afternoon was pleasantly passed with Mr. Smith in preparations for the lecture I gave in the evening in the Council Chamber, Town Hall. W. H. Smith, Esq., of Elkington Hall, presided over a fairly good audience. At the close of the meeting a small party adjourned to the house of Mr. H. O. Smith for supper, after which a discussion on bee-topics took place.

This pleasant meeting closed my tour, and it only now remains for me to thank, which I do heartily, those district secretaries and other bee-keepers who have done so much to make my tour pleasant and interesting to myself as well as profitable to those bee-keepers I have visited. The general wish, I know, is that the efforts of those gentlemen who have put their shoulders to the wheel with a desire to resuscitate the Association may meet with the success they deserve; and of this I feel convinced, that if the success of the Association depends upon the assistance Mr. Houghton gets from his district secretaries, we shall not have long to wait before we see the Lincolnshire Bee-keepers' Association taking the place among the associations affiliated with the Central Society to which its excellence as a honey-producing county entitles it.—C. N. WHITE, *Somersham, Hunts, October 13th*, 1890.

Queries and Replies.

[258.] *Honey from Ivy.*—1. Do bees gather honey from the ivy blossom, which is plentiful about here this time of the year? 2. Do you not think that one pound of honey gathered from flowers is as good as two or three pounds of syrup made from sugar? I am going to leave what I hope will last until spring. 3. I have not heard anything of foul brood, and I hope it will keep away. What is the cause of foul brood? Is it not chilled brood, by being exposed to the cold too long, or is it something in the air? I have been keeping bees these five years; in 1888 I lost all (four stocks); bought again in 1889 (two stocks); now I have eight to winter on. I trust 1891 will be better than the former years for all.—C. MARKS.

REPLY.—1. In some seasons the ivy blossom yields honey pretty freely in the late autumn, but it is usually of such poor quality as to be unsaleable for table use. 2. By no means. A pound of well-made sugar syrup will go about as far as the same quantity of honey. 3. Foul brood proceeds from various causes, as do fevers and germ diseases of all kinds. 'Chilled brood,' if left to decay in the hives, is one of these causes: for this reason all comb containing dead brood should be cut out and removed.

[259.] *Choosing a Site for an Apiary.*—I am thinking of moving my apiary for two reasons: first, the bees are too close to the

turnpike road, and, second, the honey here is very dark in colour on account of so many trees about, and I am anxious to secure some good light honey. There are numbers of beeches and oaks on the estate, and I think the honey-dew on these causes the dark-coloured honey. I have the offer to put them on the top of a high hill, with grass-fields for miles around, and a good many apple-trees at the bottom of the hill three-quarters of a mile away. We also have a good many elm-trees a mile or so away. Now the question I would ask is:—1. Will such situation be a good one for bees? also, 2. Will they visit the elm-trees after honey-dew, and so discolour the honey again? I also have the offer to locate my apiary in an open flat part of the country called the Moors: this is all pasture as far as bees fly—not many trees to be seen. 3. Which of the two you would consider the best to produce honey of good quality? 4. An expert tells me I have not more than fifteen pounds of stores in some of my hives, and that if I put a five-pound bag of moist sugar over the food-hole it would do as well as candy. Is this so?—T. J., *Oct.* 28.

REPLY.—1. It depends entirely on the amount of bee-forage growing in the district. 2. The elm-trees growing a mile away will do no harm. 3. The location whereon grows the most white clover will produce the lightest-coloured honey. 4. If you adopt the plan recommended, be careful to procure a suitable sugar, and lay the bag (which should be of coarse open canvas) direct on the top of frames—not on the feed-hole—with a covering over all.

Echoes from the Hives.

Honey Cott, Weston, Leamington, October 31st 1890.—Monday night, the 27th October, we had about five degrees of frost, thus giving our bees a foretaste of what they may expect by-and-by; yesterday, only two or three days later, the thermometer stood at 56° in the shade: the bees from many hives were very busy, and carrying in pollen very extensively, which, I expect, they gathered from the ivy growing on trees, &c. About a fortnight ago, while returning from feeding three stocks which I have in another village about a mile away, I was accosted by a friend, who informed me that a man who keeps bees on the old skep plan had told him that *my bees* had robbed two of his lots, and cleared them out. He said he had watched the bees go my way. He also knows that others keep bees that would fly in the same direction, but, of course, it must be mine. 'Tell him to keep his stocks strong,' said I, 'and then he need not fear mine or any one else's.' Some little time ago a lady who grows chrysanthemums charged my bees with turning her flowers—which were white last year—to a dirty pink colour: at least her husband said to her it was my bees that had altered the colour by inoculating them. What fads and fancies! But they will have it so.—JOHN WALTON.

Frogmore, Kingsbridge, Devon, October 20th, 1890.—I don't think that an echo from this district has ever appeared in the *B. B. Journal*, so I venture to send one. In the spring everything looked bright for a good year after such a mild winter. Swarms from straw skeps came very early. I began with four frame hives: now I have eight stocks, with plenty of bees, but very little honey, which is the complaint round about here; but in this district straw skeps appear to do best, as one man told me he had taken off a gallon of honey from one skep, and another had taken twelve quarts from two skeps. But with my eight frame hives I have only had about twelve pounds altogether. Weather has been fine for a month past; bees out every day, bringing in pollen to all the hives, which I think they gather from the ivy berries, as I saw hundreds of bees very busy on it.—CHAS. MARKS.

North Leicestershire.—To-day, November 1st, bees are in full flight, and carrying in large quantities of pollen gathered from ivy and Michaelmas daisy. Indeed, with the exception of the 26th and 27th ult., when heavy snow fell, pollen-gathering has been pretty constant for a good month. The season here has been a dead failure, forty hives in this village (Waltham-le-Wold) producing only thirty-six pounds of honey and two swarms. Not an ounce of honey was gathered from the white clover, and there is no heather, so that many stocks were starving at the end of July. Feeding is now completed, and a better season hoped for. A very marked feature in the season past was the extreme gentleness of the bees: nothing short of crushing seemed to provoke them.—E. B.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers of correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

S. A. METCALF.—Meadows' 'Guinea' Extractor is the one suited to the requirements stated.

J. G. K. (Tunbridge Wells).—The 'black honey' may be used for feeding in spring if kept in covered jars. If it shows signs of fermentation, before using add water to thin it down, and boil one minute. We should not select such honey for making mead.

*** *Several letters, queries, &c., held over.*

NOTICE.—We would ask our correspondents to take notice of the removal of our office, and request them in future to address all communications relating to the literary department, &c., to 'The Editors of the "BRITISH BEE JOURNAL," 17 *King William Street, Strand, London, W.C.*'

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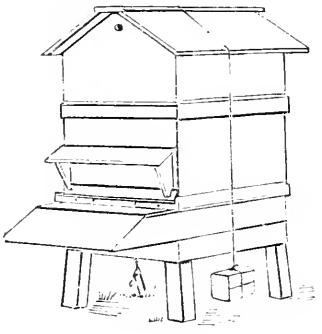
Editorial, Notices, &c.

USEFUL HINTS.

Weather and Preparing for it.—For some days past it has been very cold, rain and fog alternating with storms in many parts, while from the north of England and Scotland reports concur as to the generally wretched weather of the last week or two. These trying experiences, however, are not without their value; they give an opportunity to put in the proverbial 'stitch in time' in the shape of detecting leaks in hive-roofs, covers, &c., as well as reminding us that hives *may* be blown over if not stayed. Many effective plans have been devised for safeguarding hives on stands or legs, but none we have yet seen can surpass the tarred cord and a couple of bricks which for a long time have formed our mainstay in storms. As shown in the cut,



it is merely a strong wedge, a foot or more long, driven into the ground close under the stand on one side; to this is attached a tarred cord, which, when thrown across the hive-roof with a couple of bricks suspended thereto, forms a secure fastening, though easily removed when required. In very exposed places, where there is risk of both hive and stand being overturned, a second wedge, cut in the form of an ordinary 'tent peg,' is driven in on the opposite side, and the cord, after being passed over the notch, is brought over the roof again, thus securing both hive and stand to the ground. A look around should be given to see that hive-stands and bee-houses are on sound legs. For roofs which are obstinately leaky no cure is so effectual as a covering of light zinc. If painted once in two years, it will last a very long time and it costs very little. If turned over the edges of roof all round and tacked on the under side no drip will work in beneath it.

Final 'Fixing-up' for Winter.—It is quite common to find hives on which a considerable amount of care has been bestowed in the top packing, quite carelessly treated as regards floor-boards and entrances. We need hardly say that the one is just as important as the other, seeing that the ventilation is provided for and regulated mainly from below the combs. The form of hive used is also a main factor in ventilating the colony during winter, and it should be clearly understood that where space is not given below the combs a wide entrance is indispensable; but a fourteen or fifteen-inch doorway is almost fatal to any colony not able to protect itself from robbing. Therefore it is a *sine quâ non* that all but an inch of the doorway be covered either with wire gauze or perforated zinc. Hives with outer cases and slides to doorways of course need nothing beyond keeping a small entrance to the outside, while the full-width doorway remains as usual to the actual hive itself. After brushing off all *débris* from floor-boards, a final look must be given to the plinths to see that no water finds its way in there, and *then* a stock is in condition for being left alone in all sorts of weather, while the bee-keeper has the supreme satisfaction of knowing that all is well inside—and it *is* a comfort to know that, come wind, hail, rain, or cold, the bees are dry and warm. As the old Welshman remarked when extolling

the qualities of his flannel, 'Aye, look you,' said he, 'let you be ever so wet and cold, you will be always dry and warm!' and no doubt good Welsh flannel goes a long way towards making the old man's paradox very near the truth. For skep-coverings nothing will keep them drier and warmer—as well as ensuring them from being blown over in the severest storm—than a large earthenware pan-mug, the kind generally used by washerwomen.

MATERIAL FOR QUILTS.—Inquiries have reached us as to the best material for these. 'Carpet coverings' is a misnomer. Except where old carpets can be utilised, no one would think of providing carpet for hive-coverings. The best material we know of is the thick grey felt *under-carpeting*, which may be had from any good draper at a very moderate cost per yard and cut to size, and with care will last a lifetime.

PERSONAL.—After much and weary 'seeking without finding,' we have dropped upon a location where (D.V.) we hope to tend our bees and practise our bee-keeping for some years to come. Since wending his way south the doler out of these 'Hints' has felt very much like the proverbial 'fish out of water,' for, after being accustomed to pass along the whole frontage of his 'bee-village' daily for near a quarter of a century, it was a new experience to have 'the bees' twenty miles away, and with only a chance of seeing them about once in a couple of months or so. Besides, we hold very strong views as to the need for any one whose labour is confined to a given subject—where practical experience is of the utmost importance—being in daily touch with his theme. Hence it is that we experience a sense of relief at the early prospect of once more being within sound of the 'hum, sweet hum,' as Mr. Secor has it, of the apiary. Our new location is situated in a pretty part of Kent, the 'garden of England,' on which, oddly enough, we have always cast a longing eye, though never anticipating a nearer approach to dwelling there than looking on from the distance which, perhaps, 'lent enchantment to the view.'

We trust there is no irony in the fate which records the advent of our 'hut' by 'X-Tractor,' on page 522, just as his hut—*the* 'Hut'—is feeling the effects of time. He must get that 'skew-whift' door set straight, and we trust to have his pleasant gossipings from the hut's doorstep for many years to come.

HONEY COMPETITION.

On page 450 of *Bee Journal* for September 18th we expressed willingness to adjudicate—as requested—in the event of a honey competition being arranged between Mr. J. D. McNally and the prize-winners at the late Castle Douglas Show. After some discussion, into which we need not enter, Mr. McNally extended the terms of his 'challenge,' desiring to pit his produce against that of any bee-keeper in the United Kingdom.

In response to this, ten jars of extracted honey have been received at this office, and, as duly appointed adjudicators, we have performed our not very onerous task, deciding that the sample of honey forwarded by Mr. J. H. Howard, of Holme, Peterborough—not as his own, be it understood, but that which took first prize at the Castle Douglas Show, where he acted as judge—is the best of the ten. As the samples of Scotch and Irish honey which originally gave rise to the controversy have now been placed side by side—moreover, as Mr. McNally freely offered to abide by our decision—we trust the matter is now ended, and that those concerned will shake hands and agree to 'fight their battle over again' next year.

All the honey sent is very fine indeed for such a season as that of 1890, and does credit to the districts in which it was gathered. We need say nothing as to the second or other degrees of merit, that task not devolving on us; but we may just express a hope that this will be the first and last of such competitions. We see nothing to recommend, but a great deal to condemn in them; indeed, it is obviously preferable that differences of opinion as to whose district will produce the best honey should be decided on the ordinary exhibition show-board, where everything is done in public, and where any suspicion of bias may be freely criticised by those able to judge.

Bee-keepers who wish to assert their claims to 'championship' honours will do it far more effectually by staging their produce in public than by either using the columns of the *B. J.* in angry controversy or by enlisting the services of its editors in deciding privately on their respective claims.

THOS. W. COWAN, W. BROUGHTON CARR, } EDS.

DEVELOPMENT IN THE HONEY-BEE.

BY R. A. H. GRIMSHAW.

(*Continued from p.* 495.)

Amongst the many wonders which confront and fill us with admiration when reading about the hive-bee, probably none is more inexplicable, on the face of it, than the power it has of finding its way, first to the nectar, and finally home again with its load. Marvellous are both journeys, but especially wonderful is the latter trip. On reaching even a small number of blossoms, after the first flower has been rifled of its contents, our bee wanders about, without the

slightest clue as to its route. No memory of a track previously followed can possibly be kept. It flies from flower to flower until its load is complete, when it generally darts away on its proverbial bee-line — sinuously straight. The breeze often has a tendency to bend it away from correctness, but this force is counterbalanced by a firmer leaning towards home. Frequently the wind-power overcarries it. It cannot 'bring up' at the hive, and it puts about, beating home head to windward, laboriously tacking from side to side with almost consummate aeronautical skill, using hedges, hillocks, walls, and field-drains as wind-screens; yet, with all this ability, it is totally lost if its home have been moved a few yards. True, very often it will seek from hive to hive till it hits upon the right one; but is it not more true that it will seek to enter the nearest hive, whether it be home or not, so long as it can dispose of its load and return for more nectar-plunder? Whoever sees a lost laden bee test on the alighting-board for its home, and, finding its mistake, proceed on its search, especially when we see nothing but signs of welcome (plunder) on the part of the so-called sentinels? The more we examine the occupants of our hives the more are we convinced that the bees of a whole apiary do more visiting and exist in a greater state of communism than we are taught to think. Carniolans and Ligurian bees found away from home, lodging or living amongst foreigners, are well known to those who keep mixed varieties, and by their distinctive marks have helped us to this knowledge. That the bee finds its way 'out' to fields of bloom, firstly and principally by air-currents, bringing the scent of nectar along the lines of which it travels, till the colours of the flower strike its minute myriads of telescopic eyes, will, I think, be admitted: and this can be well substantiated by noticing the smaller quantity of honey stored in hives placed on the *edge* of clover or heather sheets, as compared with hives put down in the *midst* of them. *Every* air that blows in suitable weather gives continuous work in the latter case, whilst only one breeze is favourable in the former. It is, however, true in part that, with hives placed on the edge of field or moor, the bees, even in these adverse conditions, will work to some extent; but the excessive wear and tear, added to loss by death of bees unable to reach home with a load against the wind, almost counterbalances the good done some seasons, and we find only sufficient honey gathered to keep pace with brood-rearing; hence we hear the cry 'many a time and oft' of no surplus stores with fields of nectar-yielding plants even adjacent, the bee-keeper forgetting the presence of a continuous prevailing adverse wind. Time was when I thought hives all right if they were close enough to moors, but experience and a little reflection have taught me the perfect placing of them in the midst of the gathering-ground.

The ability of queen, drone, and worker to find their way home exactly, after roaming about at a great distance with various objects, until all remembrance of the route traversed must be hopelessly lost, cannot be by the sense of smell possessed and used by many animals, for the journey is aerial, and the scent of home may not possibly be borne along against the wind; hearing is also out of the question. The sight of prominent landmarks noticed in first flights, and the relative bearings of the hive with regard to these, is the commonly accepted theory offered as a solution of the question. This can only be a partially true explanation. Workers and drones take such deviating paths in their rambles that they cannot possibly, for the interposition of woods and hills, see such landmarks on their first essay to reach home, nor do we find them circling upwards and out of our sight until they reach an elevation enabling them to line a course to some familiar object. To all appearance, so far as smell, sight, and sound are concerned, the bees are utterly lost. Their telescopic eyes (certainly of differing foci) cannot be altered to suit *all* distances, from near yards to distant miles, any more than the eyes of the carrier pigeon can pierce the miles of mists floating between her and the dovecote, nor the migrating bird see the distant shores of its winter home. May it not be with the bee as is the case with the dog, horse, bird, &c., that instinct, inherent impulse, gives the general direction first, and this, followed up, brings into vision some familiar or remembered point, which, when approached, is soon added to by others, until finally at the stable, the kennel, or the hive, instinct and sight are supported by smell, then hearing and touch complete and crown the effort with success, by means of the natural faculties with which each animal is endowed for this and other purposes? It is surely more the right thing to endeavour to account for certain puzzling actions of honey-bees, by comparing their behaviour with that of other animals, and in every reasonable way to attribute such behaviour as resulting from the use of one or more of the senses we know them to possess in common with most other animals, than to be guilty of the audacity of inventing a further mysterious and hidden faculty, the seat of which, the physiological mechanism of which, we are in total and absolute ignorance of! Such would be the sixth sense, called the 'homing power,' in our inexplicable ignorance of the means by which honey-bees (and notably carrier pigeons, also) find their way at times, when we, in the full use of our reason, would deem them utterly lost.

We are familiar with the methods adopted by the bee-hunter of observing the lines of route taken by laden bees, intersected in the mind's eye by the line taken by released captives removed to a short distance from the first base line, the position of the bee-nest being near that point in the distance where the lines cut across each other. We are then simply dealing with bees on the usual business routine, individuals of which we have endeavoured to puzzle by temporary imprisonment and removal, but

which, nevertheless, aim for home, precisely as is the case with pigeons removed to a locality unknown to them and then let go. Bee and pigeon circle around to collect their scattered faculties and scan the landscape and horizon for the sight of some well-known prominent object; finding it, their course is simple. Not finding anything recognisable, they obey the direction of an inward impulse, which ultimately brings them right. Perhaps it may be that having circled upwards until their intelligent faculties are in a line with home, although beyond the range of vision, they become susceptible to a magnetic and sympathetic current constantly passing to and fro between themselves and home, this impulse insensibly guiding them unless the distance be so considerable that it gets dispersed and useless. Thus do we find among animals species, among species varieties, and among varieties individuals, which exhibit in a more or less marked degree the results of the exercise of this power, be it a sixth sense, a magnetic subtle influence, a direct inspiration and guiding of an omnipresent God, or all of these; but anyway a something which we are justified in reasoning out in the mind and accounting for, instead of making into a supernatural mystery by lifting the creature up into a region only occupied by uncanny fictions of the mind. (*To be continued.*)

LEGISLATIVE TREATMENT OF FOUL BROOD IN CANADA.

The Inspector's Work.—The readers of the *C.B.J.* will doubtless want to know what the foul-brood inspector has done since he commenced his official work in May last. Having received from him a pretty full report, both oral and written, I shall now submit to the *C. B. J.* a digest of the desired information.'

At the outset I may say that for my own part I am well satisfied with the work done. I may say further that as the orders for the inspector's services rained in, and as his reports came to me from time to time, I became astonished at the wide extent to which foul brood prevailed in this province. Any doubts that may have existed as to the necessity of legislative assistance in this matter ought surely by this time to be dissipated. In many localities yard after yard was found to be fairly rotten with the disease. Many had concealed the fact till the law unearthed them. Others were quite ignorant of the presence of the disease among their bees, attributing their inefficiency and general decline to other causes.

It would seem that the inspector had succeeded in discharging the difficult duties of his position efficiently, and with good judgment. Only in one or two cases would I feel disposed to take any exception in the course taken, so far as I know. And it is gratifying to find that he has been eminently successful in his treatment of the disease, as have those operating under his instructions. Another gratifying fact is that he has encountered but comparatively little opposition from the bee-keepers in his rounds among them to perform unpleasant duties. With a few exceptions, they rendered willing acquiescence, and gladly assisted him in his remedial measures. He did, however, run across a few 'black sheep' in the bee-keeper's fold. In his own language, they are 'bad men,' 'scoundrels.' They knowingly sell the disease, and their innocent victims suffer the consequences—without redress. But this will be stopped—must be stopped. Those wholesome penalties, 'made and provided' by that Act of ours will be visited upon these unprincipled offenders perhaps sooner than they expect. We have the names of parties who willingly sold diseased colonies before the passage of our Act, and of others who have knowingly or unknowingly sold such since; and we warn all that in future the law will be applied to their cases as the evidence against them may warrant. When a man sells diseased bees, pleading ignorance of the fact when challenged, and at the same time refuses to wholly or partially make good the loss of his victims, the case is *prima facie* against both his word and his honour. But these are only the exceptions to the great rule of *right* which is the guiding principle among the great majority of bee-keepers. At the inspector's suggestion, I beg to name here Mr. Jas. Stewart, of Meaford, and Mr. Birt, of Simcoe, as deserving the highest commendation for their efforts to prevent the spread of the disease and save their neighbours, involving much personal sacrifice and loss. The inspector reports that the former during the past four years has lost through foul brood over 1000 dollars, diligently striving meanwhile to rid himself of the plague—not, however, at the expense of his fellows, as he steadily refused to sell a colony so long as there was a taint of disease about his yard. The latter, he reports, voluntarily destroyed 800 dollars' worth of bees the past spring to save himself and neighbours, which, the inspector says, might have been cured and the loss averted had Mr. Birt waited. The inspector also wishes me to mention in this connexion Mr. Greutzner, of New Dundee, as an example worthy of imitation. These, of course, are but the exemplary representatives of a large majority class of Ontario bee-keepers, capable, honest, and honourable. As to the obverse side of the picture which we have already painted—that minority few of 'black sheep'—we withhold their names for the present, but warn them to sell no more foul brood and mend their ways generally as speedily as their constitutions and environments will admit.

Up to the time of report, about September 1st, the inspector had officially visited eighty-one apiaries in twelve counties and three cities, viz., the counties of Halton, Peel, Waterloo, Grey, Huron, Perth, Oxford, Norfolk, Lincoln, Wentworth, York, and Prince Edward; and the cities of Stratford, Hamilton, and Toronto. In these eighty-one apiaries he examined about

600 colonies and found foul brood in about 350 of them. In some apiaries 'every colony was rotten with the disease,' the inspector reports. He further says: 'In some apiaries where I found foul brood I only examined part of the apiaries, enough to show the owners and tell them how to cure it, and then rushed on to other places, so that there were far more than 350 cases of foul brood in these 81 apiaries.

Out of all these diseased colonies (about 300 being very badly diseased), it is encouraging to know that but three colonies had to be destroyed—the rest all having been placed under treatment, and, so far as we know at the present writing, cured, with two or three exceptions. It strikes me that this is very creditable to Mr. McEvoy, the inspector. Armed with the authority which the Act justly and properly gives the inspector, he might have burned a large number of those badly diseased colonies instead of working with them and over them for hours and even days together till the stench had sickened him, as it did do once or twice. I am always in favour of giving credit where credit is due, and I certainly think much credit is fairly due to our inspector. With a kind heart and willing hands he set himself about saving every man's property when it was possible to save it consistently with the public interests. His errors were on the side of lenience and generosity, which, of course, was much better than to err in the opposite direction. And this course has entailed upon him a great deal of extra work, which a less generous man could have easily avoided by a different course. After showing the victims of foul brood how to proceed with the treatment, it seems he was in the habit before leaving them of freely telling them to write him from time to time, telling him how they were getting on with the treatment, and asking any further information or explanation they might require. This, of course, brought him a deluge of letters which sometimes took the time of both night and day to answer. The results of this generous and judicious course have been highly satisfactory, as almost all the cases placed under treatment have been cured, and yards nearly rotten with the disease entirely rid of it.

Fall Treatment of Foul Brood.—The orders for the inspector's services are still coming in from new quarters, while a few others who have been fighting the disease all summer on their own account are still at it, and desire information for fall treatment, as it is now too late to use foundation in the curative process. For the benefit of such I here give an effective plan of fall treatment as practised with entire success by the inspector.

Remove all the combs and honey from the hive of a diseased colony and give them, either in their own hive so emptied, or another clean hive, as many *sealed* frames of honey from healthy colonies as required for winter, placing a division-board on either side of the frames, and the work is done. This is a simple process, is thoroughly successful if properly carried out, and is practicable up to November with ordinary fall weather. Should the healthy sealed honey not be on hand it can be obtained by feeding the strong colonies which you are sure are perfectly free from the disease. The combs of honey must be completely *filled* and *sealed*, so that there will be no place in them for the bees to deposit the diseased honey they may bring with them. It will then be used first, and will be digested and out of the way before it can do any mischief in brood-rearing, which will not be commenced till a space in the combs becomes emptied and clear; and in nineteen cases in twenty will not be begun at all so late in the fall. This is a sure, short, and easy method of cure for fall. Mr. Bray, the deputy-inspector, has also been in the field doing some work, but so recently that I have no report of his work as yet. All shall appear, however, in due time.—ALLAN PRINGLE, *Selby, Ont., Sept. 20th*, 1890.—(*Canadian Bee Journal.*)

Correspondence.

The Editors do not hold themselves responsible for the opinions expressed by correspondents. No notice will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITORS of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements*).

LIQUID FRUIT SUGAR.

[437.] The Committee of the Lancashire and Cheshire Bee-keepers' Association have expressed a desire for your opinion on the enclosed for feeding bees. I take leave, therefore, to place it and the following extract from a letter received by Colonel Herne before you, and, waiting your reply, remain, &c.—W. LEES MCCLURE, *Hon. Secretary.*

EXTRACT FROM LETTER TO COLONEL HERNE FROM W. WEBSTER.

'I send you to-day by sample post a small bottle containing "liquid fruit sugar," of which we have been appointed sole importers in this country. In Germany, where it is made (out of the best beet-root, by a patent process), it is very largely used by *bee*-people, so I would be much obliged if you would see *how your* bees take it and let me know. Its analysis proves it to consist of—

Sugar	75·07
Water	24·86
Ash	·07
	100·00

and it is therefore perfectly safe to use. In taste it is just like *liquid* "barley-sugar," an article which I know you used to deal in largely.'

[We know this substance very well. It was brought out by the name of 'fruit sugar,' of Dr. Follenius. To begin with, it is introduced under

a false name, because it is not entirely fruit sugar chemically prepared, but is said to be made from beetroot.

Dr. de Planta says:—'For proper alimentation it is necessary that the cane sugar should be converted into grape sugar, and this is done in the bee's mouth as the nectar passes into the stomach. This contains levulose and dextrose, that is, fruit sugar and grape sugar. Both these sugars have chemically exactly the same composition ($C^6H^{12}O^6$), but their qualities are not the same, seeing that the levulose and dextrose can be easily separated when they are mixed, as, for instance, in honey. Starch, cane sugar, gum, and levulose have all the same chemical composition, but they differ materially in their effects upon the organism.

Cane sugar, which we give our bees, is transferred atom by atom into the two substances, levulose and dextrose, in the bee's stomach, therefore the bee always obtains the two substances combined. It is the same with honey and nectar, which contain the two substances, and the bee is not properly nourished if it has the one without the other. It is an uncontested fact that bees fed on starch syrup (glucose) perish by degrees, It has also been observed that bees which rob cider mills in the autumn perish in large numbers in the winter. In both these cases they suffer from an incomplete alimentation.

Bee-keepers on the Continent are by no means agreed as to its use, some advocating it as being cheaper* than sugar, and others are as strongly against it. We see no reason for its use in this country, as sugar is so cheap, and is known, after honey, to be the best food bees can have. From a commercial point of view, we cannot see how it can be advantageous or at less cost than sugar. That it contains considerably less nourishment we think there is no question. It is said that the syrup of Dr. Follenius is made from sugar; however, if the transformation in the laboratory is not done for nothing, and that other less costly substances are not added to it, the syrup cannot be sold at the same price as sugar. It is not surprising that the manufacturers of this liquid syrup can find bee-keepers to give testimonials. Every quack medicine vendor can get his testimonials.

Lastly, we cannot too strongly protest against the using anything of this sort by bee-keepers, as it is likely to do the business of bee-keeping enormous injury. The public is not sufficiently acquainted with bee-keeping, and is only too ready to believe in adulteration; and if it were known that bee-keepers were using an artificial product of this sort, which could be used for unlawful purposes, the injury done to the pursuit would be incalculable. On all grounds we should condemn the use of this so-called 'liquid fruit sugar.'

We could also point out that the analysis proves nothing and is misleading. What sugar is contained in the seventy-five per cent.? Is it levulose or dextrose? The bees could not remain healthy or be properly nourished on either the one or the other separately, and could only live if they were found in proper chemical combination.—Eds.]

EXPERIENCES, SUGGESTIONS, ETC.

[438.] *Destroying Wasps' Nests.*—I am sorry to send my recipe so late in the season; but when the troublesome yellow-jacketed rascals have all been removed by the cold, winterly weather already upon us (yesterday, Sunday, 26th, two rather heavy snowstorms, viz., 7.30 a.m. and 2.30 p.m., followed by dreadfully cold north winds, which still continue) mark the nest in the daytime, and at night, after every little plunderer has finished work for the day, take about half a pint of tar—first set it somewhere ten minutes to warm—and after making sure you are at the right hole, pour the same into it. Then go home and sleep soundly and contentedly. If you ever see a wasp come out of that nest again tell me my remedy is a failure. Cost, about one farthing.

Stings.—I often wonder what sort of bees some of your readers keep when they talk about gloves, and stings without number. It is enough to make nervous and timid people give up in fear and trembling. Reader, please, don't, but clear out the hybrids and the foreigners, and get some pure, gentle, native bees. The number of stings received by myself in 1889 was four; of these three were inflicted by my own fault, and *once* only was I wilfully stung last season, and once have I received a wilful sting this present year. I am loth to believe either of the said stingers belonged to me. My apiary consists of about twelve hives. I work amongst them most nights in the summer, never wear gloves, but always a veil.

Packing and Sending One-pound Sections by Rail.—An easy thing, as most others are when you only know how to do it! 'Beeswing' and 'Honeysuckle' told us in the *B. J.* some two or three seasons ago. In 1888, the year of all others when as for packing sections—there was none for home use, much less to pack for rail; but last year and this I have had the pleasure of packing according to their instructions, and although late in the day, send them my sincere thanks, having sent by rail nearly all over England, several times to Ireland and Scotland, and never had one single mishap. The main secret is two or three inches of sweet hay well pressed down at the bottom of box, a very thin pad of the same between each section, and every spare inch of room pressed tightly full of hay, so that there is no possibility of either bottles or sections moving on the journey. Write the address boldly on a white label, and on a smaller one write 'Honey-comb. With care. Please keep this side up.' Tie package with strong cord to lift by.—J. W. Blankley, *Denton, Lincolnshire.*

NOTES BY THE WAY.

[439.] I was much surprised to see by letter 430 that the Castle Douglas Show is the *ultima thule* in the honey shows of the world, and that Mr. Rae is therefore champion of the world. Truly, one has to live and learn. No wonder Mr. J. D. McNally felt the matter keenly that the Railway Company should delay his exhibits if the honour of winning premier honours at Castle Douglas carried with it the proud distinction of Champion of the World!

* Sugar on the Continent is very much dearer than here, it costing from two to four times as much.

The discussion has elicited some facts that British bee-keepers will do well to take a note of, viz., that Castle Douglas is the 'hub of the universe' in the matter of honey-showing; that the exhibitors at Castle Douglas will feel the responsibility that rests with them when next competing for prizes, and send only the very best of the best their apiaries produce. I, and no doubt others who exhibit, will be obliged to 'A Scotch Bee-keeper' for giving us the information that the first prize not only carries the *ne plus ultra* to exhibitors, 'Champion of the World,' but also the equally attractive inducement to enter the lists—I mean the prize of 2*l*.—for notwithstanding the honour that attaches to a medal, that 'medal' is of greater value in the eyes of the majority of exhibitors if it bears the superscription of 'our Queen,' and is exchangeable in all parts of the civilised world.

I, too, begin to feel clannish, as a Scotch bee-keeper must feel when he pens the paragraph that the first prize at Castle Douglas has always been won by Scotch honey. I do not for a moment doubt the fact, but I ask who among the bee-keepers of England—I beg pardon, I will extend the limits: who among the bee-keepers of Great Britain or even Greater Britain, much more the *world*—knew of either Castle Douglas or its honey show. I, 'poor simple mortal,' thought London was bigger, and that the great annual bee and honey shows held there, not forgetting the last at the 'Colonial Exhibition,' would be most likely to carry weight to the majority of people; but as our Editor has closed the correspondence between Mr. Rae and Mr. McNally for the present season, I, too, feel I should curtail my remarks, therefore close with the conviction that the challenge was made by Mr. J. D. McNally in good faith, as under the circumstances I can quite enter into his feelings when he found his exhibits had been sent in by the Railway Company too late for judging, as I have had the same untoward circumstance happen on two occasions, viz., at Norwich R. A. S., and at Portsmouth in 1889. In the latter case I made a claim on the Railway Company for delay and loss of prizes, which they paid, as the previous year I took first prize in all the five classes in which I entered at the Windsor Show; and if my memory is to be depended on I think the name of J. D. McNally has figured in past years as the winner of numerous medals and first prizes at various honey shows, even taking a gold medal on one occasion. This is an honour I have not reached yet, though I flatter myself after winning the silver cup at Dundee this year that I may, 'Old Scotia' notwithstanding, hope to plant the standard yet higher and cry 'Excelsior!'

Will Mr. Thorpe kindly say if in using long hives for sections at the back of brood nest he gets them well filled, or does his letter only refer to frames for extracting? I fancy Mr. Thorpe's method of inserting the frames at back of brood nest is the opposite to the one advised some year or two back by Mr. Simmins, who placed his frames in front of brood nest to prevent swarming.

I am very glad that my letter, which you did me the honour of publishing, though at the time of writing it I had no idea of seeing it in print, has proved a nucleus towards which many suggestions have centred, and the outcome has been the elaboration of a scheme to protect the producer of apicultural products from the rapacity of unjust dealers. The system is simple, effective, and cheap, and at the same time fair to both buyer and seller. Some will hold aloof, the many will not require it who are dealing with honourable men; but where any doubts exist the deposit system will meet the case and cover the bee-keeper against loss. The suggestion of Mr. Gibbins (414) anent a reference-book would save a lot of correspondence, as only those who could give some London or equally good reference would be allowed to have an asterisk or some other simple affix to their advertisements and announcements in the pages of the *Record* and *Bee Journal*.—W. Woodley, *World's End, Newbury*.

THE DEPOSIT SYSTEM AND APPLIANCE MAKERS.

[440.] I, for one, heartily welcome your adoption of the deposit system, but am a bit taken back by seeing the protest against it by appliance-makers. If ever there was a class of dealers that seemed to require something of the sort to enable one to do business with them it is the manufacturers of bee-tackle; at least, some of them. Some, we know, are straightforward, and anxious to give satisfaction; but my experience of the past season has proved that some of them are not only dilatory, but unprincipled as well. By the Editor's permission I will give two instances of how I have been served, and I can prove the truth of all I say.

In one instance I wrote to one of our foremost appliance houses asking if they had a ripener in stock, and the price. Received reply saying they would send ripener on receipt of cash, so much. I immediately sent cash, requesting immediate delivery. I received no receipt, and after waiting one week I wrote again asking if they had ever received my money and order. They then sent it off, so that I got it in ten days, after ordering and writing twice for it.

In the other instance I wrote to another well-known dealer, enclosing stamps for samples of foundation as advertised. After waiting several days, and not receiving them, I wrote again. They then sent them with list. I made my selection and sent an order, and enclosed cash for foundation *and postage, as per list*. This was May 3rd. Not getting it, wrote again on the 7th; received card saying goods were sent away. On the 10th I telegraphed for them to stir up Post-office (I had done the same myself).

On the 12th I got another *card*, saying goods were sent away. No goods having arrived by the 16th, I wrote for particulars of posting of parcel, &c. (all this time and longer the Post-office folk were scurrying the country through for the lost parcel). To this letter I got *no reply* until I threatened to prosecute at once if they did not send me a receipt for my money and the particulars I had requested, upon which they hurriedly posted another parcel, which I got next day. About a month from date of order No. 1 parcel was found at a railway station eight miles from my place, almost crushed, with carriage, &c., to pay, addressed to me, '*Carriage forward*.' Not a word was ever said of parcel being sent by rail in all the correspondence; neither of the parcels were sent according to order. The gentleman can have the No. 1 parcel returned by paying expenses; doubtless he will read this. Both of the firms advertise extensively in the *Journal*, so that who is to know what to do with such folk? I know—bid them adieu. I think it must be this class of people that object to the deposit system, and they are the only ones who really seem to call for it.—H. N.

RE EXTRACTORS.

[441.] In reply to inquiries made by your correspondent 'Bee-Kay,' page 431 *B.B.J.* of November 6th, with reference to various kinds of machines, may I be allowed to state that the improved patent 'Unique' is constructed with movable folding cages to extract three standard frames, sections, and loose combs? The internal parts being closed in at top prevents splashing and chilling of brood combs. The arrangement also forms a light-running machine, greatly increasing the centrifugal force to the revolving cages, so that cog-gearing is absolutely unnecessary. My endeavour is to remove all misunderstanding with reference to this machine.—AMATEUR.

AWARDING MEDALS.

[442.] One of the leading horticultural societies in the north of Ireland offered two prizes for honey at their last annual show, also a gold medal for the best honey in the show. I competed, and was awarded the two first prizes. In due course the prize-money arrived, but no medal. Before acknowledging receipt of prize-money I wrote to the secretary, stating that I was fairly entitled to the medal. In reply, he wrote saying the medal could not be given, because of there not being sufficient competition, and adding a statement that the society being young was in want of funds. I noted, however, that the medal in question was offered by a gentleman in the locality. Consequently, I wrote claiming the medal as staging the best honey in the show, and insisting on my right to the prize. The matter remained there for a time, and reluctantly I had to employ legal measures to obtain what I had fairly won. The medal has now arrived, and I am very pleased with it. I would suggest that societies offering medals, &c., should insert a clause providing against insufficient entries, and thus avoid after-disputes, which at the best are very unpleasant.—JOHN D. M'NALLY, *Laurencetown, Co. Down.*

BEE-PAPERS FOR WINTER.

[443.] I should be glad to ask a question about the best way to pack a swarm for travelling. Last year I bought a swarm in Berkshire: it had swarmed two days and was in a straw skep carefully tied up in canvas. I was bringing it to Londo. by train, and held it all the time to prevent shaking, with the mouth downwards, but with only the edge resting on the carriage seat, so that the air could get in at the bottom. The bees were alive and well when the train stopped at Reading, for I heard them, but when I opened the hive in London on arriving there I found them nearly all dead; the small bit of comb made had fallen down, and I suppose smothered them, and the remainder were dead by the next day. I think a paper on this subject would be useful some time in the winter.—P. J. ORPEN, *Philipstown, Navan.*

[Packing bees for travelling, &c., will be included in the papers referred to—EDS.]

ANOTHER SWARM IN OCTOBER.

[444.] I had a swarm of bees on October 6th which I hived, and they are doing well.—C. HARRIS, *Market Drayton.*

[It need hardly be said the above has been a case of hive-desertion, not swarming.—EDS.]

JOTTINGS FROM WEST SUFFOLK.

[445.] Now we have our bees all snug and well provisioned for winter, I send a few notes from this quarter. I was pleased to read such a glowing report from Bury St. Edmunds, living as I do within thirteen miles of Bury; it made me almost wish that I was a bit nearer, so that I might have shared your correspondent's honey harvest. The season here has been almost as bad as 1888, so I have had to feed heavily to get bees in order for winter—in fact, I have used over five hundredweight of sugar; but the weather has been all that could be desired for getting stocks in order. This autumn I have driven over eighty skeps in this neighbourhood, minutely examining them, and am pleased to say I have not found a trace of disease; so I think your correspondent (No. 406, p. 511) has gone a little too far in ventilating his 'know,' when he says he is satisfied that there is not a district in this country free from foul brood. I can assure him this locality is perfectly free from this scourge, as are many other remote districts I know of where foreigners have never

been introduced; and I think his views anything but an encouragement to would-be bee-keepers. I am pleased to see the deposit system set on foot; I think it will be a great boon to bee-keepers, having myself been swindled this summer by a bee-keeper and appliance dealer——whom I suppose I must not name.—A SUFFOLK BEE-KEEPER.

THE HONEY COMPETITION.

[446.] In the *Bee Journal* of last week I was very sorry to see a feeling of jealousy introduced among bee-keepers in respect of the McNally challenge, nor do I see how Mr. Rae should be entitled to name a certain gentleman to make the award because he had on some previous occasion given him a prize. I am pleased to see our Editor is of the same opinion. I accepted the challenge in quite a different spirit, believing the gentlemen named to be above suspicion, and in that faith I, as one of the competitors, shall abide their decision.

I send a short history of my honey season for 1890, as compared with last year. From nine stocks I took in 1889 over 1000 lbs. of good super honey; this year from twelve stocks I have taken less than 400 lbs., all extracted. At the present time my bees all look healthy and well; when the sun is out at midday they are very busy carrying in pollen. I have kept bees for over six years—the black old-fashioned sort; never re-queened; let them do as they please about it themselves; never had disease of any sort amongst them, always keeping them as clean and warm as I can. I consider I have done tolerably well this year, and the samples sent for competition is a fair sample of quality. The colour is not nearly so pale as last year.—COTTAGER.

SUMMING-UP REPORT.

[447.] Mine is but a small report or summing-up, but it will serve to show what results may be expected in a poor season from a few hives of bees, kept by one whose spare time is very limited. I started the year with two stocks, and am closing it with four, well provisioned for winter, besides three driven lots, two of which are in one hive, divided with perforated zinc with an entrance front and back. I have sold honey from my own bees to the amount of 1*l.* 3*s.* 9*d.*, and 1*l.* 8*s.* 9*d.* worth bought from bee-keeping friends wherewith to supply customers. My bees were too weak in spring to do well on the early honey, or a better report would, no doubt, have resulted. Remembering, however, the disappointment experienced by bee-keepers in many parts, I am thankful for my partial success. I think we owe much to the *B. J.* for the kindly advice so freely given to all of us; and I for one attribute much of my interest in bee-keeping to reading its pages.—H. C., *Kingston-on-Thames.*

A BEE-KEEPERS' ASSOCIATION IN JAMAICA.

We have been favoured by 'A Renfrewshire Bee-keeper' with a copy of the first number of the *Bee-keepers' Exchange*, a four-page pamphlet published at Kingston by the Jamaica Bee-keepers' Association. The Hon. Sec. is a Scotchman, a native of Renfrewshire, full of energy and zeal for the cause he has taken up. We congratulate Jamaica bee-keepers on the enterprise shown, and also on the practical nature of the venture. Among the special features calculated to benefit members, it may be mentioned that a 'Store' has been established, with a duly elected storekeeper chosen each year from among the members, and where bee-goods of all kinds may be purchased at low rates. A list of books in the library is also published, small but select and useful. The periodicals taken comprise the *American Bee Journal*, *Gleanings*, *Bee-keepers' Advance*, and the *British Bee Journal*. In his address to the members of the Association, the President says:—

'*To the Members of the Jamaica Bee-keepers' Association.*

'GENTLEMEN,—In introducing to your notice this, the first number of the *Bee-keepers' Exchange*, no apology on my part is needed. The need for such a publication has been sorely felt for some time past, more especially by our country members. Bee-keepers in or near Kingston, with their more frequent opportunities of meeting for discussion, &c., could perhaps manage to rub along fairly well in the present groove; but it would be utterly impossible for even our energetic Honorary Secretary to keep in touch with an increasing number of country members without some such ready means of communication as the *Bee-keepers' Exchange*.

'Bee-keepers in the country are, comparatively speaking, so few and far apart, and their means of transit, except in a few favoured localities, so unreliable and expensive, that each one has to depend almost entirely on his own experience, aided only by bee-books written mainly with reference to countries much colder than Jamaica. Disgust often follows disaster, and bee-keeping is abandoned in consequence.

'The *Bee-keepers' Exchange* will from time to time treat of all matters connected with bees and their products, but special attention will be paid to Queen-raising, Queening, Deposing, Re-queening, Artificial and Natural Swarming, Production of Honey for Extracting, and also in Sections, Marketing Bee-products, Bee-appliances, their cost, and the best means of getting them. It is also proposed to devote a column to beginners, and another to questions, with short answers to same by practical bee-keepers. No charge will be made to members for the journal, which for the present will only be issued early each alternate month. As the main object of the publication is the spread of bee-knowledge, I trust members will do their best to circulate the copies sent them among non-members interested in bees. With the spread of such knowledge the soap-box in bee-keeping must soon become a thing of the past, and the frame hive, with all its advantages, triumphant. Let us all strive to attain so desirable an end, remember-

ing always the motto our bees so forcibly and—let us confess it—sometimes so painfully impress upon us, "Unity is strength."—JOHN TILLMAN, *President Jamaica Bee-keepers' Association.*'

BEES AND THE ELECTRIC LIGHT.

[A few months ago a paragraph went the round of the British press describing an extraordinary effect of the electric light on bees. We are glad to print the *Graphic* account of the affair alongside the actual facts of the case, as described in the organ of the Jamaica Bee-keepers' Association — the *Bee-keepers' Exchange.*—EDS. *B. J.*]

'"A bee-keeper living near a large hotel being built at Kingston, Jamaica, recently found his hives in the utmost confusion, with many bees lying about exhausted or dead. The electric light was used at the hotel in order that the building operations should continue all night, so the bees mistook the light for daylight, and would go out to hunt pollen round the neighbourhood thus illuminated. When they came home they found that the real day was dawning, and they flew off again without any rest, till they literally worked themselves to death."

'The above extract is taken from the *Graphic* of the 19th July, 1890, page 58, and is, in substance, correct. At the time alluded to there were several flowering cocoanut-trees surrounding the electric light (the Thomson-Houston Company's patent arc lamps being those in use) used for night-work by the contractors for erecting Myrtle Bank Hotel, and Mr. Owen assures us that not only were the bees attracted from their hives, but belated bees also shared in the general mistake, and were drawn into the shades (which are open at the top), and perished by thousands. In addition to the weary ones round the hives, thousands dead and disabled were taken out of the shades by the persons attending to the lamps in the mornings. Up to the present Mr. Owen's hives are still weak, although he has removed them to Saint Andrew.'

BEE-KEEPING OVER A HUNDRED YEARS AGO.

(*From* '*Scott's Magazine,*' 1766.)

An essay on the management of bees, wherein is shewn the method of rearing those useful insects; and that the practice of saving their lives when their honey and wax are taken from them was known to the ancients, and is in itself simply and easily executed. By John Mills, F.R.S. 3*s.*

(*From the* '*Gentleman's Magazine,*' 1792.)

July 10, 1792.

SIR,—The following account of an improvement in the management of bees is strongly recommended by those who have put it in practice:—

The improvement is that of having *double* skeps, the one on the top of the other. When the lower skep is filled with honey it is to be removed after the bees are admitted (through a passage which is made to be opened) into the upper skep. Into this skep food must be put, and the bees will remain there and go on with their work in it. When it is filled with honey the former skep (with food in it) may be replaced, and the bees again admitted into it. The full skep is then to be taken away. This change of the skeps must always be made about midsummer, and by thus alternately removing the full one more honey will be collected than is usual, *and the bees will not be destroyed.*—K. K.

Queries and Replies.

[260.] *The Wax-moth.*—1. I have a hive which has stood five years (hive made out of a box turned upside down), and has swarmed several times; but lately the bees have gradually wasted away till the hive at last was empty of bees, though there was about three pounds of honey and plenty of unsealed bee-food stored. On turning up the said hive I found a nest of large white maggots, such as I have enclosed for your inspection, and also a portion of the nest which the maggots seem to have made. 2. I also enclose two specimens of bees from a hive I drove about September 1st, which have stored their food, and seem in a fair way of success. I fancied I could detect two sorts of bees—one with a broad light brown band at the top of abdomen, the other bees seem to be ordinary brown bees. Kindly say if there is any difference between the two enclosed specimens in strain or whatnot.—JESSE MARLOW, *Market Harboro'.*

REPLY.—1. The 'maggots' sent are the larvæ of the wax-moth, and what you call the nest is simply the thick covering with which the larva covers itself for protection. When the combs of such a hive (?) as you describe get into that condition it offers a favourable opportunity for burning the whole lot, as it cannot be called a hive, and is best destroyed. 2. Bees are hybrid Ligurians. It is quite common among hybrids to see several variations of markings from the same queen.

[261.] *Quantity of Food for Winter.*—I am wintering three stocks of bees. No. 1 on eight standard frames. I calculate there was on October 5th six frames half full of sealed stores and quarter full of unsealed, with a little brood on one frame. No. 2 hive on six frames. On the same date, October 5th, frames half full of sealed and quarter full of unsealed, with brood on two frames. No. 3 is a skep, and weighed twenty pounds when I stopped feeding, including stores, skep, wax, and bees. I have not fed since October 5th, when I packed them up for the winter. Do you consider I can safely leave them, and that they have sufficient for winter purposes? Why I ask is that I notice the bees in No. 1 hive are quite quiet, while those in

No. 2 and the skep are out and about on every possible occasion, and I thought it might denote scarcity. No. 2 are driven bees. If you think they should have more, how do you propose I should give it them? I have no fast feeder.—York.

Reply.—Frames as described should contain nearly four pounds of food in each if fairly free from pollen, and if so the two standard stocks will be fairly well provisioned. The skep is not so well provided for. In any case of uncertainty, however, it is best to give a cake of soft candy over the feed-hole to make all doubly sure.

[262.] *Foul Brood in Autumn.*—I was sorry to get your opinion that the hive from which the piece of comb was sent you is attacked with foul brood. I would like to try and cure it at once if you will tell me how. I will be very sorry to give the disease a chance of spreading to my three other hives, which I believe are quite healthy and strong at present. I must also ask you not to class me among those who will only half follow your advice. Anything you may tell me to do I will do it, no matter how much trouble it may take.—J. F. Fargher.

Reply.—Not much can be done so late in the season beyond removing the few combs which contain sealed cells and foul-broody matter and but little food. The bees must be crowded together, and their numbers preserved by warm winter packing, so as to be ready for treatment in spring. It is not a bad case, and may yield to treatment when you give the food medicated with formic acid in spring as advised.

[263.] *Bees and Chrysanthemums.*—My case is just like that of the lady whom John Walton writes about (on p. 549). Last autumn, a year ago, I bought a lovely white chrysanthemum; this autumn it has turned a dirty pink, and my mother keeps her bees just over the hedge. What can the reason be?—Foxglove.

Reply.—Without entering into the question why the flowers do not remain true to colour, we may assure you that bees have had no hand in effecting the change. The chrysanthemum is not an annual, and therefore the mischief cannot be laid at the door of the bee.

[264.] *Fermenting Honey.*—I have taken about 100 lbs. of heather honey with a press, one-third of which shows signs of fermentation. Kindly say can any remedy be applied? Is it because of too much pollen? If no remedy, can I boil it up and give it to the bees?—Jubal Barret.

Reply.—Heather honey should never be extracted from brood combs containing any considerable amount of pollen as well as honey. It is bad enough to use the ordinary extractor to such combs; but to force out and mix up pollen and honey—as is unavoidable when the honey-press is used—will only produce a mixture hardly fit for use. It might be utilised for the bees in spring by adding it sparingly in the thin syrup given at that time.

[265.] *Uniting Bees.*—My apiary consists of eight stocks in an even row. I wish to unite two into one, and there are several hives between the two hives to be joined. Is it possible to bring those two together, unite them, and still leave the hives in an even row? Why it it so many bee-keepers are so very selfish? The 'flour dodge,' for instance: how many who knew it must have seen the failures of amateurs through your paper when their explanation would have saved them. It seems they are not too busy or lazy to write, judging from the number of disclosures since the one kind bee-keeper has made it known.—E. H. M.

Reply.—Leave the 'uniting' till the bees have been confined to the hive for some time during frost, then bring the two together at one operation, and after they have flown for a day or two from the new location, do the 'uniting' in the ordinary way.

BEES AND AGRICULTURE.

Mr. William Woodley forwards some cuttings from a local newspaper referring to a correspondence in which he has taken part. The paper in question appears to possess a reporter or correspondent whose duties include writing an agricultural report for the district, and as this gentleman falls foul of bee-keeping in a very decided fashion, while apparently possessing a very limited knowledge of what he is talking about, *our* correspondent, Mr. Woodley, takes up the cudgels on behalf of the bee.

In the 'report' for June 2nd, 1890, occurs this passage:—

'We see a great deal in the papers about bee-keeping; but persons forget, or do not know, that it is a great robbery to the farmer, for honey is one of the best ingedients in the hay, and many use sugar when carting, and so supply what has taken away.'

To this Mr. Woodley replies:—

To the Editor of the 'Newbury Weekly News.'

Sir,—Your writer of agricultural notes has got out of his depth, *re* Bee-keepers and Farmers, if our leading *savants* know anything of the subject. The scientists contend that the nectar is formed in the plant to attract the insect to fulfil the act of fertilisation by carrying grains of pollen from flower to flower, and that after the flower has been visited, that flower does not put forth more nectar, but goes on forming seed. If, however, the flower is not visited by the bee, and the act of fertilisation is not accomplished, the plant still continues to form nectar to attract the insect, which dries up and is scattered by the winds, practically 'wasted on the desert air.' Our colony of New Zealand had to import red clover seed, as they had no insect with tongue long and tapering enough to reach the honey or nectar contained in the flowers, consequently could not grow seed in that country. A noted London bee-keeper and a Scotch bee-keeper together introduced the bumble-bee, *Bumbus terrestus*, by packing same in moss and sending them over in the refrigerating compartment of the steamship *John Elder* a few years back. Now they are acclimatised, our Antipodean friends and brothers

can by their aid grow their own red clover-seed. I would commend to your writer the works of Darwin, Cheshire, Cook, &c., which will soon dispel his erroneous ideas. He knows quite well that no farmer ever has to put sugar to his hay, unless the goodness is washed out by continued rain; then why libel the farmer's best friend, *Apis mellifica* ?—I am, sir, yours faithfully, W. Woodley, *World's End, June*, 1890.

A second letter of Mr. Woodley reads as follows:—

Sir,—Your writer of agricultural notes in last issue admits, though negatively, the beneficial activity of bees visiting the two fields of turnip seed. The fault of hybridising the seed does not rest with the fertilising agent, *i.e.*, the insect, but in the seed-grower in allowing two fields of the same species of plant to seed near each other. The fact that the flowers are fertilised by pollen brought by the bees from the adjoining field, establishes the great importance of the bee in the economy of nature. As regards the writer's contention that the hay is so much the poorer in quality, because the bees have gathered nectar from the flowers while in bloom, I trust he will read up what our scientists say on the subject; but it may interest him to know that the beautiful sweet early hay now in stack is the produce of the fields visited by the busy bees to cull the nectar, and from which most of the honey this season has been gathered; that the musty, washed, tasteless hay that *requires the sugar* is the hay from which the bees gathered little or no honey, and, according to your writer, contains all the honey produced by the plant. Bee-keepers will acknowledge the soft impeachment that they do not keep bees especially or solely to fertilise the farmers' seeds, any more than the farmer sows fields of nectar-bearing plants for the benefit of the bee-keeper. We are each dependent on the other. It may interest agriculturists to know that of *trifolium prætense* 100 flower heads on plants protected by gauze did not produce *one single seed*, whilst 100 plants growing outside, which were visited by bees, yielded 2720 seeds. In *trifolium repens* (Dutch clover) twenty heads unprotected yielded 2290 seeds, while twenty protected heads of bloom had 'only a single aborted seed.' The visits of the bee are equally beneficial to the fruit-grower as to the farmer. We should look in vain for the strawberry, the raspberry, the apple, the gooseberries, and other fruits, if we had no bees to fertilise the blossoms, so that if they do extract the nectar of which they make honey, they give something in return of equal, if not greater value, and instead of the farmer being a loser, I maintain he is the gainer. If the weather is cold and wet the busy bees cannot visit the flowers, and the consequence is that the farmer gets a poor yield of seed, be it of beans, peas, vetches, or the smaller kinds of farm seeds.

But the sting of 'Agriculturist's' remarks is, like the bee's, in its tail. It has been reserved in some inscrutable way for the writer to make the astounding assertion that bee-keepers are the receivers of stolen property. Think of the gentle 'Huber,' of Father Langstroth, and the army of bee-keepers amongst our nobility and clergy being dubbed receivers of stolen goods! Let the mind revert to the inspired writings, how often the promised land was alluded to as a good land, a land flowing with milk and honey; how the patriarch of old said to his sons, 'Take a little honey as a present to the house of Pharaoh.' Fancy sending stolen goods as a present to a king! Then, from the 'long ago,' come down to the Jubilee of the Royal Show at Windsor last year, when a present of honey was made to the Queen of England. There, at our very doors, was giving and receiving stolen goods, if the writer of 'Agricultural Notes' is right in dubbing the busy bees as 'busy little thieves' and their owners receivers of their nefarious avocation. —W. Woodley, *World's End, July 5th*, 1890.

Echoes from the Hives.

Wolverhampton, November 8th.—I have extracted about seventy pounds from five stocks—a very good yield for the season and the locality. I have just been trying flour for uniting operations, and it succeeds admirably—how simple, too.—C. N. P.

Dial Lane, West Bromwich, October 27th.—I only commenced bee-keeping in October last year with two hives, and now I am wintering six stock; from two of these I took 49 pounds of honey in July. I have reared queens, taken out queen-cells, hived swarms for myself, and have examined hives for a friend, and in one I found a fertile worker. I introduced a fertile queen successfully 'direct,' and have closed up his stock for winter for him, and the only instruction I have received has been from Cowan's *Guide*, Cowan's *Wintering*, Simmins's *Farm, Modern Bee-keeping*, and the *B.B.J.* My ambition is progress in bee-keeping, and if careful study and practice will attain that I am on the road to success, I believe.—Thomas Griffiths.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

Cottager.—The matter has been dealt with on another page.

Evan Franks (Upper Norwood).—By carefully following the instructions for candy making on page 514, *B. J.* for October 23rd, you will find the bee-candy will *not* set hard. The bees would no doubt use a portion of the hard candy, but it is not suitable as a winter food.

B. Wright (Scunthorpe).—Bees sent are as near as need be the ordinary black or native variety. There is a trace of the Carniolan, but it is only slight.

W. H. Walker (Greenwich).—Of the three bees sent two are queens and one a worker of the ordinary native variety. Both queens appear to have been fertilised, but the bodies are too hard and stiff for microscopical examination.

Erratum.—On page 533, left hand column, ninth line from bottom, *for* 'Gatmars' *read* 'Gatinais.'

THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

No. 439. Vol. XVIII. N.S. 47.] NOVEMBER 20, 1890. [*Published Weekly.*

Editorial, Notices, &c.

BEE-KEEPING AND FARMING.

In our issue of last week was inserted a cutting from a local weekly paper having special reference to bee-keeping and farming, and as the subject has, by its appearing in our columns, caused some little uneasiness on the part of a few bee-keepers, we may be excused for again referring to it. The paragraph in question reads thus :—'We see a great deal in the papers about bee-keeping; but persons forget, or do not know, that it is a great robbery to the farmer, for honey is one of the best ingredients in the hay, and many use sugar when carting, and so supply what has been taken away.'

As the gentleman who made the statement is a bee-keeper himself, or, at least, professes to be one, we think he should have taken the trouble to inform himself of the real state of the case before committing his ideas to paper, or, if indisposed to do this, will he make inquiries of farmers as to whether they have experienced any difference in the quality of the hay harvested in what are known as good and bad honey years? In some seasons, as we all know, vast amounts of honey are gathered, and we make bold to say that in such seasons the hay is of prime quality, far better than when gathered in a honeyless year.

When we consider the efforts being made by the British and other kindred Bee-keepers' Associations to induce farmers and others similarly occupied to take up bee-keeping as a branch of their farm-work, and to reasonably hope that it may be made as profitable as any other rural industry, it would seem little short of absurd to hope for any measure of success if such sentiments as are expressed in the paragraph quoted above were allowed to go forth as having even a portion of truth about them; but there is nothing whatever to justify anything being said which can cause farmers to regard bees either as robbers or as insect pests, or even to look on the honey-bee in any other light than that of the farmer's and fruit-grower's friend and helper.

If a field of clover, never visited by a bee, were cut and made into hay, we maintain that its nutritious properties, as well as its actual *weight*, would be considerably diminished, because its flower-heads would be practically seedless, and consequently would contain less nutriment.

We do not propose to go into the subject further than Mr. Woodley has done in controverting the statement of the agricultural correspondent of the paper, except by taking what that gentleman terms 'the practical,' and, we might add, the common-sense 'view,' which assures us that he is wrong, as well as unjust, in endeavouring to create a prejudice against 'the industrious little labourer, the honey-bee.' Indeed, so apparently uncertain is he in the soundness of his contention that his reply to Mr. Woodley contains no more convincing argument than as follows :—'I cannot allow Mr. Woodley's letters to pass unnoticed, although he is far too scientific for me, and I only take the practical view, that if you take the honey away from the hay it must be a good quality lost, and I do not believe one bee-keeper in ten ever thought of it. I keep bees myself, and am very fond of them, and I hear that Mr Woodley is A1 in the art of bee-keeping. I congratulate him on it, but I am sorry that he should take it so much to heart that he is a receiver of stolen property, but from his remarks it is evidently not done with a felonious intent.' We think that bee-keeping will not lose the goodwill of the farmer when nothing more convincing than this can be adduced in support of the very serious allegation made against the good character of the bee, which all bee-keepers will no doubt resent.

Foreign.

REVIEW OF FRENCH BEE JOURNALS.

By J. Dennler (Engheim).

1. The *Apiculteur* (founded by H. Hamet, thirty-four years ago) of October last. The subscription for the burial monument of M. Hamet to the present time amounts to 243 francs 50 centimes.

An exhibition of French products, got up by private enterprise, will be opened in Moscow on the 12th of May, 1891. The particulars are supplied by M. Daubrenne, General Secretary of the Exhibition, 12 Rue Tronchet, Paris.

Naphthol and Bacillus alvei.—From experiments recently made in Lyons, the results are that naphthol* destroys *bacillus alvei*, or the bacilli which are developed in the intestine of the bee, and cause the infectious and virulent malady commonly called foul brood. Thirty-three centigrammes of naphthol are dissolved in one litre of sugar syrup, and one gramme of alcohol is added to assist the dissolution. This remedy is administered in spring before brood-rearing commences.

A. Bertault agrees entirely with M. de Layens that it is necessary to wait until honey is capped over and well evaporated before extracting.

Duty on Wax and Honey.—M. Wadeleux thinks that in order to put a stop to the fraud of substituting ceresine for beeswax, there should be no hindrance to the entrance of the latter into France. Therefore there should be either no customs duty, or this should be very small. He also asks for an import duty of only ten francs the 100 kilos. on extra-European honey, whereas the Société centrale d'Apiculture proposes thirty-five francs for the same quantity. M. Wadeleux is a honey and wax merchant in Paris.

2. *Le Rucher*, official organ of the Société d'Apiculteur de la Region du Nord. Managing Director, A. Leroy, Amiens.

Duties on Mineral Wax.—Vol. III., No. 5. After a careful investigation of the question at the Chamber of Commerce in Amiens, the Society proposes to bring the complaints of bee-keepers before the State, and asks to have the duty on mineral wax passing the frontier raised to 100 francs the 100 kilos., as this is doing an injury in competing with beeswax. The Chamber has decided that the proposition be printed and transmitted to the Ministers of Commerce, Industries, and the Colonies, and also to the Minister of Finance, to the Commissioners of Customs, the Chamber of Deputies and the Senate; also to the Senators and Deputies of the Department and the Chambers of Commerce. The present duty on ceresine or ozokerit is eight francs the 100 kilos. in France. In Germany it is eighteen francs seventy-five centimes; in Austria, twenty-seven francs fifty centimes the 100 kilos.; and in Belgium there is an *ad valorem* duty of ten per cent. The annual import of mineral wax into France is 800,000 kilos.

3. *Le Rucher.* No. 6.—*Granulation of Honey.*—Granulation is produced in consequence of the successive drawing together of the atoms of honey. It is then that this remarkable phenomenon takes place, namely, that one litre of honey newly extracted no longer occupies the same space after granulation has taken place. After granulation there is only found 0·965 of a litre, that is 0·035 of a litre or fifty grammes of honey less than before granulation. Consequently, if one wishes to have a litre jar full of honey after it has granulated, fifty grammes of honey must be added. It is therefore evident that the bee-keeper gains by selling his honey by weight rather than by measure, as, for example, in selling a hectolitre of honey when it is completely granulated the bee-keeper sustains a loss of five kilos., or three and a half litres, which would not happen if the bee-keeper sold his honey by weight, for a hundredweight of honey loses nothing in weight after granulation.

A new era in rational bee-keeping has commenced in Belgium. Several societies and three journals relating to apiculture have been founded, two of these in French, and one in Flemish. The following are the titles:—

4. *Bulletin Apicole*, organ of the Société d'Apiculture du Bassin de la Meuse. Editor, M. Wathelet, of Prayon-Trooz.

5. *Le Progrès Apicole*, organ of the Fédération apicole du Hainaut. Editor, M. Alex. Lonay, of Mons.

6. *De Bie, Maandelijksch Tidschrift der Bieënlelers van België en Holland*, edited by F. B. de Ridder, pastor, &c.

At the meeting of delegates held at Mons on the 28th September last, three special committees were constituted with a view to studying the following questions:—(*a*) To find out the most practical means for the Society to obtain comb foundation for its members of good quality and at a reasonable price. (*b*) The best method of developing a demand for honey and selling the produce of members; how to organize honey markets; what should be the shape of receptacles, and what mark should be used exclusively to denote members' honey; how to proceed to put a stop to adulteration, &c. (*c*) What modification in the rural code should be recommended with regard to establishing apiaries and the right of following swarms.

AMERICA.

The 'Apiarist,' in his report in Part 2 *Bulletin* of the Rhode Island Apicultural Experimental Station (with advance sheets of which we have been favoured) gives an account of wintering the colonies in the open and in cellars, and says with regard to spring feeding—'That the

* The naphthol here alluded to is known as *naphthol beta*, and was recommended by Dr. Lortet, of Lyons, in the *Revue Internationale* of M. Bertrand.—Ed. *B. B. J.*

colonies might be built up quickly and made very populous by the time of the honey-flow from apple-blossoms, we desired that each should receive daily a small quantity of food to stimulate brood-raising. As our visits to the station at that time were made not oftener than once in ten days, the usual plan of regularly giving in a feeder a small quantity of thin syrup could not be followed, therefore, to accomplish the same or similar results, we adopted the plan of feeding soft undissolved sugar in the hive. As with daily syrup feeding, though in a less degree, this could not be done without danger of greater loss than gain, until the weather allowed the bees almost daily flights. Up to that time those colonies having sufficient stores were not fed or their stores uncapped—empty combs only were given as required; but early in May good moist sugar was supplied in frame feeders hung next to the brood combs and sufficient given to last until another visit. This was renewed as needed, and the result was all that could be desired. As apple-bloom apparently failed to secrete nectar, the feeders were allowed to remain until some time previous to the honey-flow from clover, when they were removed from all colonies that were to be used for honey production, and at the commencement of the harvest all combs of stores that might contain this feed were also removed and given to nucleus colonies.

'This method of dry-sugar feeding, as it is called, was brought before the public by Mr. Samuel Simmins, of England, and is described in various English books and publications on bee-culture, but, we believe is little understood or followed in this country. After several years' trial of the plan, on a somewhat extended scale, we do not hesitate te recommend it. It is *well suited to the management of out-apiaries, where but occasional visits are made*, and in all cases, though possibly in a dry country not so effective as syrup feeding, *saves the trouble of making syrup and the time required in its daily distribution*, while the danger of the disastrous results of occasionally omitting the daily ration is avoided. Instead of dry sugar, moist sugar like good grades of molasses and C sugar are best, but the former should first be well drained. This, placed in a feeder where the heat and moisture is confined, is slowly licked up or liquefied by the bees. The rapidity with which this is done depends upon the heat and moisture in the hive. By placing an enamelled cloth, enamelled side down, over the frames in place of the porous covering, the loss of moisture, so desirable in freezing weather, may be lessened, while by removing the warm cushions or quilts from part of its surface, condensation of moisture takes place upon the enamelled face beneath and furnishes water to promote more rapid work. The sugar may be placed in an ordinary syrup feeder or wrapped in cheese-cloth and laid over the frames, but the arrangement we prefer and use here is similar to Mr. Simmins's pattern, and consists of a hollow dummy, having the same length and depth as the brood frame, and a similar top bar and a movable side that does not reach the top bar by a quarter of an inch. This is filled by removing the side, while the space at the top allows the bees access and but little escape of heat. If the inside space is more than an inch wide comb will be built therein. This mode of feeding is not only suitable for spring stimulation but is invaluable in a poor season to prevent starvation, for queen-rearing, for building up nuclei and working for increase or drawing out foundation, as well as for promoting brood-rearing after removing what is in some localities the only honey crop of the season. By using soft candy of best granulated sugar it may be made to piece out scant stores in the fall.

'When in the production of comb honey dummies are needed to fill space in brood chamber of new swarms, they may be made from these unused feeders by nailing on the movable sides so as to exclude the bees.

'A practical experiment in the use of artificial heat to promote brood-rearing has been successfully conducted, the details of which will be given at a later date, when additional results shall have been gained.—Samuel Cushman.'

ESSEX BEE-KEEPERS' ASSOCIATION.

Autumn County Show.

The autumn county show of honey and wax of the Essex Bee-keepers' Association was held on Wednesday, the 12th of November, in the Corn Exchange, Chelmsford, in connexion with the chrysanthemum show of the Chelmsford and Essex Horticultural Society. There were eleven exhibitors from various parts of the county, and about thirty entries, which is a decrease compared with last year. The quality of the clear run honey was very good, but the granulated was somewhat below the average, two of the specimens being gathered from a district in which the flowers did not agree with the honey. Owing to the bad season, sections were evidently very scarce throughout Essex. The competition was keen in wax, the first prize going to Mrs. Cobb, of Great Waltham, for an exceptionally fine specimen. Mr. Christie-Miller, of Broomfield, carried off several prizes in the classes for amateurs, and Mr. W. Debnam made an excellent display in the open classes, likewise securing the premier awards in the dealers' classes, though without competition. The certificate and silver and bronze medals of the British Bee-keepers' Association, won at the Agricultural Show, were on view, as were also the certificates given by the Essex Association, and won at Romford, Kelvedon, Southminster, Ongar, Rivenhall, Ramsden, Saffron Walden, and Burnham. A remarkably large wasps' nest, taken by Mr. Robert Woodhouse, J.P., from inside the roof of a cottage at Writtle, was also exhibited, and excited some curiosity. The judges were Mr. G. H. Aubrey, of Springfield, Mr. C. R. Finch, Great Baddow, and Mr. F. H. Meggy, the hon. secretary. Many hundreds of persons visited the show during the morning and evening.

The following is a list of the awards:—

Honey.—Dealers' classes.—Twelve one-pound sections 1890 comb honey. 1, W. Debnam, Chelmsford.—Twelve one-pound jars 1890 clear run honey. 1, W. Debnam.—Twelve one-pound jars 1890 granulated honey. 1, W. Debnam.

Amateur classes.—Twelve one-pound sections 1890 comb honey. 1, Mr. Christie-Miller, Broomfield; 2, A. Mayell, Bradwell-on-Sea.—Twelve one-pound jars 1890 clear run honey. 1, Mr. Christie-Miller; 2, A. Mayell; 3, Mrs. Cobb, Great Waltham.—Twelve one-pound jars 1890 granulated run honey. 1, L. J. Sparrow, Great Baddow; 2, Mrs. Thomas Jackson, Tillingham; 3, A. Mayell.—Super comb honey of 1890, not being in one-pound sections. 1, A. Mayell; 2, Mr. J. L. Sparrow.

Open classes.—Collection of comb and extracted honey, not less than forty pounds or more than sixty pounds. 1, W. Debnam.—Collection of comb and extracted honey, not less than twelve pounds or more than twenty pounds. 1, Mr. Christie-Miller; 2, John Winter, Kelvedon; 3, A. Mayell.—Single section of 1890 honey. 1, Mr. Christie-Miller; 2, W. Debnam.—Sample of pure beeswax, not less than two pounds. 1, Mrs. Cobb; 2, W. Debnam; 3, G. Joslin, Brodwell-on-Sea.

WOTTON-UNDER-EDGE DISTRICT BEE-KEEPERS' ASSOCIATION.

The fifth annual dinner of the above Association took place on Wednesday, November 5th, when forty-three members and friends sat down to an excellent repast at the 'Star' Inn, the chair being taken by Mr. H. Goldingham.

After the repast the Chairman gave the usual loyal toasts, and these were heartily received. He then called on the Hon. Sec. to read his report, which was approved and carried unanimously. In congratulating the members on their success during the past year, the Chairman said he took the chair with much diffidence, as he was comparatively a new hand at bee-keeping. He had much pleasure in handing the bronze medal of the B.B.K.A. to Mr. Griffin. The silver medal, as he explained, had been forwarded to the President, to whom it had been awarded.

Mr. V. R. Perkins then gave a very interesting lecture on the 'Anatomy of the Honey-bee and the Relations of Bees to Flowers,' aided by the diagrams published by the B.B.K.A. Mr. Perkins explained at some length how desirable it was for bees or other insects to visit the flowers, in order to ensure the fertilisation of the blossoms.

The Hon. Sec., Mr. Brown, replying to the toast of his health, said he kept bees as much for pleasure as profit, and he was quite sure bee-keeping was a more profitable hobby than a good many things, and far more pleasant except on the few occasions when the bees take it in their heads to pay one a little too *pointed* attention. Altogether a most pleasant social evening was spent.

In the report referred to the Hon. Sec. says:—

'It is with much pleasure that I can report a very prosperous year for the Wotton-under-Edge District B.K.A. Until the present year we had been affiliated to the county of Gloucester Association, but at the end of 1889, after an existence of six years, that Association was dissolved, and we are now affiliated to the British B. K. A., for which privilege we have to pay 1*l.* 1*s.* per year. In return for that 1*l.* 1*s.* we get a voice in the management of the B. B. K. A., the purchase of their publications at trade price, the receipt of one silver and one bronze medal and one certificate for competition at our annual show, the service of an examiner to meet candidates who enter for experts' certificates, &c., so that for our guinea I think we are well treated. At the beginning of the year, when we had decided to become affiliated to the B.B.K.A., a letter was written to the Countess of Ducie asking her Ladyship to become President of the Wotton-under-Edge District B.K.A. Her Ladyship replied saying she should have much pleasure in accepting the office of President. Our funds at that time were too low for the Association to carry on its work in anything like a proper order, and so a circular was drawn up asking the public for assistance (for this, and for many other useful hints, our thanks are due to Mr. V. R. Perkins). This circular was well responded to, and, thanks to a generous President, who headed the subscription list with 5*l.*, and the hearty support of the public, we have purchased a bee-tent and been able to keep out of debt. We have close on forty members, which is an increase of about ten from last year. These members have somewhere about 130 stocks of bees. A few copies of both the *Bee Journal* and the *Bee-keepers' Record* have been circulated weekly and monthly, and with few exceptions these papers have been pretty regularly passed round. Members are entitled to the loan of the above papers, to the free use of any of the appliances the Association has, a cheaper rate of entrance fee for exhibiting at the Association's show, to purchase at a reduced price the publications of the B.B.K.A., also the interchange of ideas at the monthly meetings, and advice from the experts. The monthly meetings have this year been very well attended. We have had ten monthly meetings, with an average of ten members present, which is very good considering that many of the members live at a long distance from the town.

'On the 20th of August last our third annual exhibition of bees, hives, and honey was held in connexion with the Horticultural Society's show, about three hundredweight of honey being staged thereat. This was a falling off of about one-half from last year's show, the season of 1890 being very bad for the bee-farmer as well as the agricultural farmer. The chief prize of the show, the silver medal of the B.B.K.A., was taken by our President, the Countess of Ducie, for the best twenty-four one-pound sections, her Ladyship being a most enthusiastic bee-keeper. Mr. Hulance, of Alderley, coming in very close, took second honours. The bronze medal was won by Mr. Griffin for the best twenty-four one-pound bottles of extracted honey, Mr. Brown second, and the Countess of Ducie third. The full prize list has already been printed. Three candidates came forward for their third-class examination, viz., Messrs. Griffin,

Hulance, and Parker; Messrs. Griffin and Hulance being successful. Since then Mr. Hulance has been examined for the higher degree, but the result has not yet been received. With the view of encouraging the sale of pure honey gathered in the neighbourhood and produced by the members, the Association have issued a label or wrap for bottles or sections bearing the following inscription:—"This label is issued with a view of encouraging the sale of pure honey gathered in this district," &c.—A. J. BROWN, *Hon. Sec.*'

Correspondence.

The Editors do not hold themselves responsible for the opinions expressed by correspondents. No notice will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITORS of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements.*)

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

IN THE HUT.

'In solitude, when we are least alone.'

[448.] I never enter the Hut but my nostrils are assailed with that odour of *omnium gatherum* always perceptible where there is a lot of bee-gear. It is not propolis, nor heather combs, nor carbolic acid, but the smell of all these mixed with sting-preventive and the smell of wax that give together a *je ne sais quoi* characteristic to a degree in the olfactories of a bee-keeper. The smell reminds him (such is the vivid power of association of ideas) of the joyous opening of prosperous beehives dripping in their porches with the condensed sweat of the hard-working community; it is a sweet and glorious smell to the cognoscenti, recalling prosperity amongst the bees, but to the non-elect I doubt not it is—

'The rankest compound of villainous smells
That ever offended nostril.'

So it is with all odours, they are agreeable or disgusting, exactly as the surroundings were pleasing or distasteful when last felt—to *feel* a smell is 'quite Yorkshire.'

So to go to the Hut for solitude is to get it not, and we are not alone amid so many reminders of pleasures past and future. To let 'X-Tractor' get a whiff of tobacco-smoked bee-veil is quite sufficient to bring back to memory days of long ago; indeed, time was when the smell of carbolic acid was to all positively disgusting, simply through a well-known unpleasant association therewith connected; now a 'sniff of the bottle' to the bee-keeper is absolutely agreeable by reason of the use of it under pleasing conditions.

Solitude for the bee-keeper there is none! Many a time and oft have I climbed to the top of Hoad Hill in order to feel the dreadful pleasure of being quite alone, with the sea and the sunset to the south and west, the vast expanse of the Lake mountains to the north and east bathed in a hue of gloomy purple; out in the bay an islet covered with dense green, almost black, foliage of Scots firs, floats in a shallow sea of gold; high up across the fells a couple of carrion crows are fleeting homewards to the rocks from their food-search along the shore; the only sounds breaking the dismal stillness seem to make it more profound: the barking of a very distant sheep-dog driving together his charge, almost regularly alternates with the weird cry of a lapwing as she flaps her way, as if lost, across the swampy hollow where a short time before I had found the wonderfully constructed sundew in luxuriant growth amongst the cold oozy masses of sphagnum. Alone? Yes, so much alone that the ticking of one's watch is almost a companionable relief, but suddenly comes a sound that gladdens the heart and scatters the gloomy thoughts which urge themselves into the mind—thoughts on the charms (?) of solitude—for a real hive-bee is still at work on the hill-top. To scrape acquaintance with it, to be almost fondlingly solicitous and attentive consistent with safety for it and self is, of course, a first duty, and my next to get safely down into the valley beneath before darkness deepens, after seeing my little comforter off home like a shot. Thus am I cheered and reminded of the dear ones at home by the ubiquitous bee.

When sailing in Filey Bay (perhaps not less than three miles across) my mind is again taken home to the bees by the attempt of a humble-bee to rest on the sails of the boat. Another time, after a successful attempt to lose myself amidst the beeches, ferns, and rich fungi of Epping Forest, I am not allowed to be alone by the hive-bee, for not one, but many, are working the bits of ling always typical of a closing year. I go on a crowded pleasure steamer, of the ill-fated *Princess Alice* type, on a trip from London to Gravesend, and I count seventy odd humble-bees which separately cross the Thames as the boat passes down the river. The bees, all in one direction, fly from the north to the south side; they are returning home towards the close of day. Query: How many bees in a given distance passed from Essex to Kent per hour? and (selected query) why should they breed in Kent and feed in Essex? There was something in bloom at that particular time just to the humble-bees' taste—the Essex bees were at home. No doubt earlier in the season I would be able to make precisely a reversed observation when a tasty flower was in luxuriant bloom on the Kent shore. Another time, 'midst the bustle and worry of business, I had a pleasant interview with a honey-bee I picked up from the steps of St. Paul's Cathedral, and again, near the Borough Market, just across London Bridge, I was delighted to come across

a queen humble-bee, so that you see we cannot escape from our blessed bees.

At the risk of being blamed for unnecessary repetition, I cannot refrain from again recommending boiler felt as a splendid winter covering for frames over the usual enamel or American cloth quilt; it 'tucks in' so capitally. When I get an opportunity I intend trying old military felt saddle-cloths, the nearest approach to which is the felt under carpet advocated in last week's 'Useful Hints.'

I am writing this in pain, consequent on a fall in Liverpool whilst on a journey to Dublin, where I had the intention of looking up that exceedingly inventive bee-keeper, Mr. Sproule: in returning home I was recommended to try, for a sprain, an embrocation made by beating up together the white of one egg with a teaspoonful each of honey and salt. Being under medical advice I have not been able to give it a fair trial, but there is sound reason in the recipe, and therefore I repeat it.

I wonder how it is my pictures (that is my numbers of *B.B.J.*) of eminent bee-keepers are blotched or blurred over the right eye—the left eye of the original—I cannot imagine they are tipping us a friendly wink!

Though very loth to suggest improvements in our *Journal* which entail extra labour in its preparation, especially when you are launching out into prospective winter papers, coloured plates, deposit system, &c., I really should like to see a table of maximum and minimum temperature for the past week, taken, say, in the latitude of London; the information could be easily got from the London dailies, and would be a useful record, forming the material for an article at the end of the quarter, season, or year, which would give us a *resumé* of the past weather and the lesson to be deduced therefrom.

They are progressing at a rapid rate with foul brood in Canada, I notice by your extract from the *C. B. J.*, and ominously enough the article is headed 'The inspector's *work*.' Yes: I think a great deal of it will be his work, performed of course in all innocence and meaning well. He examines eighty-one apiaries and finds foul brood in 350 stocks, and then, to use his own words, rushes on to other places. Let us fancy here a Government inspector finding 350 cases of smallpox in eighty-one families and then rushing off, visiting every house he can find and inspecting them! He would surely carry about spores of the disease (his clothing being fomites), and those who were free would probably not be long so. In this old and backward (!) county we have long ago stopped the expert thus spreading the pest. He is the county inspector. They may well find yard after yard fairly rotten with the disease. Well, I suppose I oughtn't to find fault without suggesting a remedy! Why not ask them to take a lesson from our custom as practised by the Eds. *B. B. J.*—let their inspector stop at home and report on pieces of comb sent him from suspected apiaries, burning the infected bits, and enclosing a leaflet of printed instructions as to treatment. As far advanced as we consider ourselves in medical science in the *fin de siècle*, I thoroughly believe our medical men's visits contribute in no small degree to the spread of zymotic diseases; the precautions they take are paltry in the eyes of—X-Tractor.

THE DEPOSIT SYSTEM.

[449.] I am sure bee-keepers generally will thank you for your offer to manage a deposit system of payment anent the sale of honey and appliances. Such a system is very much wanted, as I can testify, having been myself victimised by an unscrupulous dealer who involved me in a loss of about 9*l*. In March last I answered an advertisement of some bees for sale said to belong to a clergyman, but offered by a dealer. In answer to my queries it was stated that the bees covered six to nine frames; that each stock had given a surplus of over 100 lbs. of honey the previous season; that the queens were bred in 1889, and that the bees were *guaranteed* free from disease of any kind. Trusting to these statements I bought six stocks of bees and forwarded cash. They were to be sent to arrive on a date in April. Before the date on which the stocks were to have been delivered, I received a note asking me for delay, as the dealer thought the queens were too old (1889), and that he would introduce 1890 queens. I gave him time to do this, but after further delay they arrived, still having the old queens, and, by the dealer's statement, 'not nearly so good as they were a month before.' If his statements were true in March, they most certainly were not in April, for not one of them would have been too closely packed if on only four frames. None of them had one ounce of honey in the combs. They were all diseased. I at once telegraphed refusing acceptance, and stating that the bees were diseased. After proving this fact to the dealer's satisfaction he wired me to 'return bees,' and agreed to refund my cash with costs. The bees were at once returned, but instead of cash I first got letters asking for delay in paying. When I refused this he threatened me in various ways with actions at law for slander, &c. Finally, I put the case into a solicitor's hands. I need not wade through all the dismal story, but in the end I learned of his becoming bankrupt, and the last news I got from the solicitor was to the effect that there was nothing to divide among the creditors.

Here, then, ended my first bee-purchase from a distance, and unless some such scheme as the deposit system had been gone into it would certainly have been my last on your side of the border, and I am sure it would also have been the last from any bee-keepers in this district. However, now we have the deposit system to keep us right, we may muster up courage again, should necessity require it, and come south. I have no hesitation in saying that to really good,

trustworthy firms it will be an advantage, as it will give strangers confidence. But I should like to hear what a few of the principal dealers have to say on the subject. As to your correspondent, No. 414, objecting to it on the ground that the sixpence commission took all the profit on low-priced articles, that is nonsense, as how many people would think of sending 1*s.* or 1*s.* 6*d.* to the editor on deposit? However, if they did so it could easily be obviated by dealers stating in advertising that on sums deposited under 5*s.* value, commission would have to be paid by the sender. I would like personally to thank the editors of the *B.J.* for the help they gave me in my bee-dealing case when my friend Mr. Sinclair wrote them about it.—James Sim, *Temple, Drumlithie, Fordoun, N.B.*

EXPERIENCES, SUGGESTIONS, ETC.

[450.] *Unfinished Sections.*—I never had so many of these on hand as this year; of course there is the extractor remedy, but this means 3*d.* or 4*d.* per pound less than if the sections could be completed, and to accomplish this in a season like the one just over was impossible, as we have no heather in our district. About the end of June, whilst brooding over these unfinished sections, I put to myself a query—Is there no way of getting at least some of them completed? I thought of the feeding back system, as practised in some American apiaries, and spoken of as being of doubtful utility—of taking out all fairly finished ones and tiering downwards to two crates where there were three and one where there were two. This latter plan, combined with plenty of warm wrapping, answers fairly well in an ordinary good season, but in the past one of 1890 was little or no good whatever. As I should suppose, most queens worth keeping were early at work breeding this season, and, having had a good spell at it, were not loth to give up and wait patiently for a further display of their breeding powers in 1891, and this cessation of egg-laying beginning as early as the end of June, which state of things quickly emptied the brood chamber of brood, and with so many empty cupboards, no wonder the little busy toiler does not trouble to climb to overhead stores with its load. Now my idea was this, and I have to thank 'X-Tractor' for his reminder on the subject (No. 354). When the clover is about three parts over take off sections, place on a Canadian feeder well charged with warm syrup (possibly a strong stock would take down sufficient in one night to fill up the brood chamber). If put on at six p.m. the feeder might be removed in the morning early, replacing it with a crate of partly finished sections with no storage-room below. All must go above deck, and with warm wrappings my theory is—*not 'experience' yet for I failed to find time to test it this season*—that more sections would be got finished in a poor season this way than any other. Stopping breeding just at that time would to my mind be no loss to a colony, but rather a gain, as a lot of brood just at that time means consumption of stores by bees that will never do any work for it. I do not now allude to heather districts, as in those this choking of the brood chamber must not take place until a day or two before going to the moors; or possibly it might be done on arriving there. Let me say here that I should have written on this subject before now, but for the fear of being laughed at for my trouble, but now that the same idea has came out of the 'X-Tractor,' fear no longer troubles me, and especially as he tells us it's no new idea to him, having written on the subject some time back. Might I ask in what paper and when? as I would much like to read, and also to ask if the process has ever been thoroughly tried by any of your readers? Surely in these days of advanced bee-keeping the matter of the queen being compelled to cease at a time when brood is not wanted is a small difficulty to overcome. If the queen had worked her second season, and could not be induced to start breeding again a little later on, she could be taken away and a young prolific queen introduced in her stead. Then there is the matter of the brood combs being all filled with syrup, when it would be beneficial for a little breeding to go on, and so ensure that the colony had a fair share of young bees to face the winter with. But that can scarcely be called a difficulty in these days when hives and frames in most apiaries are all the same size; five or six syrup-clogged frames might be taken out and divided between late swarms or any stock that needed help, and their place filled up with ready-built combs. If there were no honey coming in after the young queen had been introduced to the colony, a little slow feeding would keep up breeding as long as it was thought desirable. The whole would involve some little extra labour, which I do not advocate to any whose time is limited, but any one considering the plan feasible, and having the time to carry it out, might give the the thing a fair trial and report results in *B.B.J.*—J. W. Blankley, *Denton, Lincs.*

VIRGIN QUEENS.

[451.] Mr. Woodley (415, p. 523) asks for information respecting virgin queens sent by post. Although I advertised such all last summer, at the same time as I advertised fertile queens, I only received orders for two, which shows the demand for black virgins to be very small, as at the same time my orders for fertile queens far exceeded my supply. One went to the north of Scotland, and I heard no more about her; the other went to Essex. I first forwarded to this purchaser a virgin about three days old, in the usual Benton cage, with a few workers, but she arrived dead. I replaced her with a queen sent in a similar box as soon as she hatched, but with no accompanying bees. She arrived safely, and the buyer wrote to me as follows five weeks after receiving her:—'In accordance with my

promise, I have much pleasure in informing you that the last virgin queen you sent me has now filled four frames with brood, and with a little feeding the nucleus will turn into a good stock before long.' This queen was a pure black, and was especially required to try a cross with the buyer's pure Carniolan drones. She was introduced by merely running her in at the entrance after dark with a little smoke. I am amused at seeing queen-cages again discussed, as I have found nothing safer than direct introduction. I have introduced hundreds of queens on this plan, and have certainly not had two per cent. refused.—EDWARD J. GIBBINS, *Neath*.

PREPARING BEES FOR WINTER.

[452.] Perhaps some of your readers may care to know how I prepare my bees to pass the winter.

My hives are nearly all on the parallel, or, as it is sometimes called, the warm system, with the frames hanging parallel with the entrance, which entrance can be closed up to only admit one bee at a time, or will open to the whole width of 14½ inches by half an inch. Each hive will hold ten broad-shouldered or Abbott's frames (which I like better than any other kind) and two dummies, or when the dummies are removed, eleven frames in all, with air-space between inner and outer wall.

The floor-board projects to form a sloping alighting-board, is movable, and stands upon four stout legs. All my hives are fitted with an upper storey, nine inches deep, with plinth all round and fitted with loose inner walls back and front, so that the frames in upper storey hang at right angles to those below. They have a ridge roof with sides, also nine inches deep, with three holes for ventilation, back and front, covered with perforated zinc.

When packing up for winter (if possible not later than August), I close up to the number of frames the bees will then completely cover, placing a dummy back and front, the latter having an entrance six inches by three-eighths of an inch cut out of it. Then put on top storey or lift. Cover frames with a quilt of bed-ticking or American cloth, either of which I find answers equally well (the latter, perhaps, being the best in the spring when breeding is going on rapidly). Then fill up air-space with either cork-dust or sawdust until it is level with top of frames, after which I cover up warmly with generally three thicknesses of carpet, felt, &c.

If American cloth or other impervious material is used, the inner walls of top storey may be laid flat over the quilts to assist in keeping in the heat, but not over bed-ticking or other pervious material, as it will prevent the moisture from the bees evaporating, and so cause the quilts to become damp and mouldy.

Keeping the upper storey on the hive is, I find, a great preventive of damp, mouldy quilts, and with a high, well-ventilated roof, allows plenty of dry air to circulate over the quilts, and when pervious quilts are used I find by experience that the bees winter remarkably well so managed.

My bees wintered extremely well last year. I only lost one weak cast, which to save from the sulphur pit I put in a hive on three empty combs and fed up in October, and which died, probably from want of numbers and power to keep themselves warm. The only objection I can see to the upper storey or loft remaining on the hive during the winter is that it may be blown over. This can be easily prevented by driving a stake into the ground on either side and passing a cord over the top of roof of hive from one to the other.

I have never had a hive so upset, although I never take any means to prevent it, in spite of some of my hives being in an exposed position. If some of your readers who have been in the habit of placing the roofs of their hives close down over the quilts will try my plan of leaving a large air-space over the quilts, I think they will find their bees come out next spring all the better for it. Apologising for the length of this letter,—HAROLD ADCOCK, M.R.C.S., *Middleton, Northampton*.

NATIVES *v.* CARNIOLANS—STOPPING ROBBERY.

[453.] I send you a jotting or two which possibly may be of interest. On October 30th it was almost, if not quite, as mild as the average days of last June. I have been equalising stores in my hives: I had several driven lots, and to save trouble—my spare time not being great—I gave enough food to go on with, and fed up one stock with half a hundredweight of sugar, dividing the food afterwards amongst the rest. We have had a very poor season this year. I started with two stocks, and on May 21st got a stock of Carniolans on six frames. From the two lots of English bees I got an average of 20 lbs. surplus, whilst—though I had to feed the Carniolans all through till July—I did not get a couple of pounds of honey even in the brood chamber. They filled the hive with so much brood that they could not get food for it, and I noticed on July 20th that they were dragging brood out. Even now (though on the 27th ult. snow fell on Dartmoor, ten miles off) I find two or three frames each with several square inches of sealed brood. I thought in September they were queenless, and endeavoured to introduce a queen, but they ate away all the comb around the cage—a 'pipe-cover' one—and killed the new queen! Afterwards, as they cast out the drones, I let them stay. I did not find it an easy job to see her majesty when there were fifteen frames crowded with bees.

Last spring, finding that a weak hive was being robbed, I sprinkled pea-meal over all the bees that passed in or out to find out whether my own bees were responsible for the fuss, and to my surprise I found the robbing ceased. I attributed it at the time to the fact that they disliked the dusting.

I endeavoured during the summer to start a

bee-keeping association among the bee-keepers here, but was unsuccessful. They mostly decline to learn rational methods.—W. F. TRONSON, *Morchard Bishop, North Devon.*

'LONG IDEA' HIVES.

[454.] In reply to your comments upon my letter in reference to preventing swarms, in last week's *Journal*, allow me to say that my predilection for this 'long idea' hive was formed many years ago, and after having thoroughly tried it. I took one made by the village carpenter to the county show, and there explained its advantages for utility, economy, and—last, but not least—its comfort for bees. The following year Mr. Godfrey took one stocked with bees to Sleaford Show, and deservedly took first prize. Mr. Baldwin facetiously remarked that it contained five ordinary stocks of bees; and the next year I showed a stock of Ligurians, and took first prize at Lincoln. Since that time they have gradually increased in this county, and the letters I have recently received testify that they have taken a firm hold; and notwithstanding your predilection for tiering hives, I venture to say that the 'mop' will not confine it to this county, but allow me to put it on record through the *Journal*, and time will prove which is right. I am not an appliance dealer, so have no 'axe to grind.'—R. THORPE, *Swineshead, November 10th*, 1890.

ABOUT EXTRACTORS.

[455.] Doubtless some of your readers will be glad to hear what I have to say *re* gearing. Since commencing making extractors, I have made above 1700, and not three per cent. have I sent out with gearing. In many cases, as your readers will remember, I have even, when gearing has been ordered, advised customers not to have it. Editors have expressed a view that particular kinds of gearing belong to particular manufacturers, so I will not treat here on their respective merits; but positively assert that with a well-constructed machine gearing *is not* necessary for our English market.—W. P. MEADOWS.

THE DEPOSIT SYSTEM AND APPLIANCE DEALERS.

[456.] In these matters the innocent suffer for the guilty. I purchase a considerable quantity of honey during the year, and also supply bee-appliances; and while the failings of unfair traders and dishonest honey merchants are published without the least clue to their name or address, all dealers and honey merchants are under the dark cloud. I think a list of appliance dealers and honey merchants might be published in the *Journal* and *Record* at a small charge per annum, and an asterisk affixed to the names of *those only* who could forward at least half-a-dozen testimonials from persons with whom they have done business. My experience teaches me that there are two sides to this question; some bee-keepers order, and when they receive the goods promptly *fail to remit*, others when they forward cash with order often send an insufficient sum and forget (?) to remit the balance.—L. WREN, *Lowestoft.*

REMOVING BEES TO HEATHER.

[457.] In reply to the request of 'Augustus' (419, p. 526), may I draw his attention to the instructions given by the late Mr. Raitt in the *Record* some time ago regarding removal of bees to the heather, and if I mistake not, republished this season? These are the lines I go upon. Without going more into details anything I can say would be a repetition of them. Being ignorant of the mode of procedure adopted by 'Augustus,' it is impossible to say how failure occurs, or to point out a remedy.— SCOTCH HEATHER.

COLOUR OF HONEY, ETC.

[We have received from our esteemed correspondent, 'A Bee-keeper Past and Present,' the following letters with the samples of honey there alluded to. Both the samples seem excellent specimens of heather honey, and the one ten years old particularly rich in flavour and of a beautiful amber colour. There are other matters of interest alluded to in the letters which we reproduce, and we much regret that Mr. Sanders' state of health does not permit him to be a more frequent contributor to our columns. His long experience and sound judgment could not but be of very great value to our readers.—EDS.]

SIR,—I send you a morsel from the finest heather honey gathered *ten years ago*, which will show you *prime* colour, though it should be, from granulation or exposure, slightly more pungent than at first. I call the colour amber, but I have got very excellent specimens in past years from the Mull of Kintyre of a *light yellow*, and from Arran of a *brownish yellow*, either of which in old comb looks very dark.

Bell-heather honey getting amongst ling honey gives a pungent taste, and, apart from mixture, the stage at which honey is gathered (especially clover) appears to somewhat determine colour.

Borgue honey of first quality is pale green when newly gathered, and honey from limes this year showed green.

Good heather honey in a drying season is as thick as dessert jelly, and cannot be thrown out by the extractor. Your first prize, *reddish brown*, was perhaps genuine, for I do not remember seeing the thickest sugar preserve air-bubbles long.

Your second, *dark brown*, might be superior, and I could almost be sure it was, without seeing it. Honey *last year* was of the very best quality.

I have not seen any good honey of this year's produce, except some from very populous hives which could do a vast amount of work in one day. Generally clover honey was *thin* and inferior.

The specimens sent show what I regard as the better colour for heather honey, and the cause of green colour may be from thyme, lime, &c. There was a great deal of feeding this last summer, and sugar for feeding is now coloured to meet taste. —R. SANDERS, *Lockerbie, September 20th*, 1890.

SIR,—By this post I send you a small specimen of heather honey cut from a section filled this near at Balnastraid, near Carrbridge or Grantown in Inverness-shire, on the farm of Mr. Stokes, whose name you might see mentioned in the *Bee Journal* of September 25th.

In that part of the world the rainfall is small, say, *fifteen inches* at Grantown compared with *fifteen feet* at Styehead in Cumberland.

The honey there is considered excellent, and Mr. Stokes does not send his produce into the market; it is all *bespoke* or sold privately. Still, it is not equal in quality to the honey gathered by my bees from heather or hardberry near two miles distant, from which I sent you the ten-year-old specimen.

With regard to my letter, you are quite at liberty to give the Editors permission to use it. I seldom write articles now, as sitting at the desk does not suit me, my circulation being slow.

With regard to foul brood, in autumn my plan was to shake the bees suddenly from the frames into a skep before they had time to take up much honey. Next, to turn the combs at nightfall, scrape frames and hive, and then wash thoroughly with a solution of chloride of lime, using a good-sized paint-brush, leaving hive and frames to soak for twenty-four hours.

Afterwards I washed hives and frames in clean water and dried them. I then returned the bees and fed them up with *loaf* sugar and carbolic acid. Put an ounce bottle of Calvert's carbolic acid No. 1 into a *quart* of water. From this refill the ounce bottle and put it into a pint of syrup. The syrup is usually three pounds of loaf sugar to two pints of water just boiled. This was successful, and hives so treated gave good results the following season, showing no symptoms of foul brood.—R. SANDERS, *Lockerbie, November 7th*, 1890.

SEASON OF 1890 AS COMPARED WITH 1889.

[458.] The season in this part of Northamptonshire has not been with me the complete failure that it has been in some other counties.

I have taken this year, in comb and extracted honey, a little over three hundredweight from eighteen hives, spring count (now twenty).

Last year I took thirteen hundredweight of comb and extracted honey from sixteen hives, spring count, leaving each hive with from six to ten combs partly full of honey for winter use. I have little fear of my bees being short of stores this winter, for a considerable quantity of honey has been stored since the end of August, when I closed up for winter, each hive being then well furnished. I manage my bees on the non-swarming principle, with standard frames in the upper storey, and generally excluder zinc over the brood nest. I had two swarms this year, one last year.—HAROLD ADCOCK, M.R.C.S., *Middleton, Northampton.*

FOREIGN *V.* NATIVE BEES—DESTROYING WASPS' NESTS, ETC.

[459.] This has not been so good a honey harvest in this district as last year, my average only being twenty-five pounds a hive against fifty-five pounds last year. I have been greatly pleased with the work of my Italians introduced last year, as they have outdone my blacks by a long way in honey-gathering. My Carniolans also have done nearly as well, and have not troubled me by swarming.

I have had two bad cases of foul brood this season. On finding this out, I shook off all the bees into empty skeps, destroying all the old combs, and replacing the bees into clean hives on foundation, and on my last examination of these hives, on October 21st, I found them free from disease and in better condition than I expected. Wasps have been very numerous here this season. The best and quickest way I found to destroy them was to get one ounce of cyanide of potassium, dissolve in a quarter of a pint of water, steep a rag in the solution and push into the hole of the nest, and in about ten minutes you will find a large quantity dead outside that have returned home since stopping up the hole, and the same result will be found on getting out the nest.—RICHARD C. BLUNDELL, '*Benhams*,' *Horley, Surrey.*

[While there are so many simple means of destroying wasps' nests, such as tar, turpentine, powder, &c., we should not like to recommend the use of so dangerous an agent as cyanide of potassium.—EDS. *B.J.*]

A COCK-SPARROW TALE.—A FACT.

A little cock sparrow sat at a hive door,
Having tasted a bee was greedy for more;
He knocked at the door, attention to call,
And when a bee came, devoured it all!

His lovely brown coat was mottled all o'er,
So smart did he look when at the hive door;
He chirped and he chis-ecked, made a jar and a squeak,
To entice the bees out to his sharp little beak.

A watchful bee-man, with his eye on the bird,
Determined to punish behaviour absurd,
Fetched a steel trap and a small bit of bread,
There at the hive door he daintily spread.

This little cock sparrow came back to the door,
He had tasted a bee and wanted some more,
When the thought hit him hard, 'A nice bit of bread—
A good taste of that will do me instead.'

So this little cock sparrow (hard 'tis to tell),
Went peck at the bread—a click was his knell!
When the watchful bee-man returned to the place,
The poor little bird was in trappy's embrace!

MORAL.

Cock sparrows, let the bees alone.

TINKER.

Queries and Replies.

[266.] *Good or Bad Honey?*—I have sent you a sample of 1889 honey, such as I sold to a gentleman at St. Albans twelve months ago. On November 8th I called to ask if he required any more, and he said the other had quite turned him against honey, and he had been obliged to throw it away. I asked if I could be shown a sample of it, for I knew the honey was as pure when I sold it as the bees had gathered it, and I considered the quality very good. Has it fermented, and if so what is the cause of it doing so?—W. Gudgeon, *St. Albans, Herts.*

Reply.—There surely must be some mistake, if, as you state, the honey was thrown away because of its bad quality. The sample sent is a most excellent article, ripe, sound, and as fine-flavoured a clover honey as we would wish to see.

[267.] *Joining Weak Stocks.*—A lady bee-keeper wants advice in what I consider an almost hopeless case. Would you kindly help me to help her, if at all possible? The case is this:—She has four hives—Nos. 1 and 4 bar frames, Nos. 2 and 3 straw skeps. No. 1, Few bees, scarcely any honey, some combs mouldy; No. 2, Few bees, comb dry, little or no honey; No. 3, Plenty bees, sufficient honey; No. 4, Few bees, little or no honey, dry.—Hibernicus, *Beltarbet.*

Reply.—To have three stocks out of four in the condition described is indeed an almost hopeless case. We should first get at the cause of the bees being in such a poor state. Maybe disease is at the bottom of the mischief, and if it is we should on no account touch the strong lot (No. 3), but would join the other three lots of bees into the frame hive if the latter is healthy; then, after pouring three or four pounds of warm syrup into the combs, give a five-pound cake of soft candy over the top of frames. Use flour in uniting.

[268.] *Queen Not Laying.*—May I trouble you to enlighten me through the *B.B.J.* as to the cause of enclosed queen not laying any eggs? It is one I bought with a swarm in July last (a second swarm), which dwindled away although given a frame of food and plenty of syrup. I found her with not more than six bees left alive in the hive.—Alpha, *Preston.*

Reply.—The queen sent has been fertilised and in the ordinary course should have gone on breeding; her having failed to do so can only be accounted for by supposing that she has been injured in some way not observable under the microscope in the dried-up condition of the body when received.

[269.] *Chilled Brood or Foul Brood?*—I send you a sample of honey which puzzles me. It was taken from a hive in August, I think, perfectly healthy as to brood, &c., but a shower of rain came on during the process, and the smoker (Clarke's) broke; so between bees, rain, and darkness—it was about eight p.m.—the super had to be put under a tree for the night after this. The bees were nicely cleared off next day, and the frames—on which there was a little brood, say one-third from lower edge of comb—was put in a frame box for about three weeks or a month to wait for another lot before borrowing an extractor from a friend. Some of the brood combs had, when I went to look at them, patches of a greenish-white mould on them, and smelt rather. Is this 'foul brood' or 'chilled brood?' I carefully cut away all this and ran the honey off by the old process (it was part heather) of cutting the combs out and putting in a muslin bag. Some of the honey is delicious, about ten pounds, and this lot, part of the same lot, is as sample herewith, only not all so frothy, but the taste is the same. Is it eatable and saleable? Will it, if not eatable, do to give the bees with formic acid mixed with it, as in syrup, or without the acid? My bees have done pretty well, but not in the autumn; late spring was the only time they *did* anything. To return. Had the frames, supposing this to be foul brood, better all be boiled or burnt—if the former in water ten per cent. carbolic or other solution? What would you recommend? I fear if they must be burnt about fifty frames must go; and also the bees got into my bee-house, or work-room, and cleaned these frames, also others. What am I to do? I have five stocks all fairly strong, six or seven frames covered with bees in each hive bar one—this, too, is a skep which did not swarm. I notice query No. 256. I have a long hive, and I find ten or eleven frames is as much as can be done on the same storey without loss. Tiering I should certainly advise in all cases for profit. That is the advice of an amateur of six years' standing.—W. H. H., *Ruthin.*

Reply.—We cannot say for certain whether foul brood is in the combs without seeing a piece of the comb and dead brood. It was very unwise to remove the frames from the hive and allow the brood in the combs to perish. Of course it would result in 'chilled brood,' but that, if returned to the hive to decay therein would be almost like introducing incipient foul brood to the colony. However, as you have cut it all away and, we hope, have destroyed it, that mischief is avoided. The honey sent is fermenting. It is fit for eating but neither palatable nor wholesome. Stirred into boiling syrup and boiled a minute or two it would do for bee-food.

[270.] *Driven Bees in Combless Hives in November.*—1. I have a skep of bees which swarmed June 8th. What ought they to weigh to winter safely? 2. I have also a skep of bees which I had given me for driving them; they have no comb in the skep. What is the best food to feed them on, and what quantity will be right? I have been feeding them on syrup made by adding five pounds of sugar to a quart of water boiled for two minutes. I put a little in a bottle over the hole in the top of skep, but they do not take it down, only now and

then, once perhaps in three or four days. Will they live if kept warm?—FRANK KNIGHT, *Luton, Beds.*

REPLY.—1. The swarmed skep should weigh at least twenty-five pounds at this date to be sufficiently supplied with food for winter. 2. The driven bees will not survive the winter under the conditions described. They had best be united to the other stock. For your future guidance we should explain that driven bees can only fill a combless hive with new combs in the autumn, when there are plenty of bees, and they are fed very rapidly in fairly warm weather. To expect a single lot of driven bees to comb a hive and store food in the middle of November is altogether too much.

[271.] *Drones in November.*—1. To-day, on drawing back the slide of an observatory hive, I noticed some workers chasing a drone with intent to kill. A few minutes after I found one (drone) fresh cast from the hive. Is having drones so late in the year a proof that it is queenless, and if so, why kill? 2. I have some combs with dead brood in them: would it be wise to use them next year? They are from a hive that was robbed during breeding season. Foul brood unknown here. 3. Is it too late to re-queen?—HENRY BARRAS, *Chester-le-Street Durham.*

REPLY.—1. Drones in a hive in November are strong presumptive evidence of queenlessness, but it is just possible the one you saw was from another hive, hence the bees driving it out or killing it. 2. Combs containing dead brood should be melted down, not used again. 3. Re-queening should be deferred till spring.

[272.] *Making Bee-Candy.*—The other day I made some soft candy, but by a stupid mistake substituted 'tartaric acid' for cream of tartar. The result is very soft—like a thick paste. Is this all right, and will it be safe to feed to bees?—H. K. T., *Wolverhampton.*

REPLY.—The tartaric acid will do no harm. If the candy is too soft knead into it a sufficient quantity of 'icing' sugar to make it stiff and prevent it from falling down between the combs.

[273.] *Clearing up Wet Combs.*—I write to ask you what I am to do with combs after the honey has been extracted? Would it be a good plan to wash them in hot water to get rid of the remaining honey and then to pass them through extractor? or is there any danger of mouldy combs from this process?—MIDDLESEX, *Crouch End.*

REPLY.—After extracting the honey from frames of comb they should be given back to the bees for a day to clean up. They will be then found perfectly dry and ready for packing away.

Echoes from the Hives.

Syston, near Leicester, November 14th.—I was very pleased to see an 'Echo' from an old and tried friend, 'E. B.,' in your issue of November 6th. I endorse his statement for our county. I got a little extracted honey and a few sections very early—not a quarter what I ought to have had—gathered principally from hawthorn and fruit blossoms. It was very disheartening the season stopping as it did; every one was so sanguine of good results. We have again to live and hope.—W. P. MEADOWS.

LECTURE AT BRIDGENORTH, SHROPSHIRE.

On Tuesday evening, November 11th, a lecture was delivered to the members of the Mutual Improvement Association by Mr. J. E. Roden, of Oldbury, entitled 'A Chat about Bees.'

The Rev. W. J. Dyer (President) presided, and there was a good attendance of members and their friends, including a number of ladies. The lecture was illustrated by limelight lantern-slides, prepared by Mr. Alfred Watkins, Hereford, and these pictures were greatly appreciated.

Mr. Roden prefaced his address by stating that he considered the honey-bee one of the most wonderful of God's creatures, and proceeded to describe its natural history, its anatomy and physiology, old and modern methods of bee-keeping, its importance as a fertiliser of fruit-blossoms, and as a means of bettering the condition of the labourer and cottager. On the motion of Mr. H. E. Barker (hon. sec.), seconded by Mr. W. L. Shuker, and supported by Mr. Councillor Lloyd, a hearty vote of thanks was accorded Mr. Roden for his lecture. Mr. E. Oakes (a visitor from Broseley) and Mr. T. Humphreys (a veteran bee-keeper) also expressed their thanks to Mr. Roden for his paper, and both gave some interesting reminiscences of their own experiences as bee-men of many years' standing.

A SINGULARLY SITUATED BEEHIVE.—Our Galashiels correspondent writes: A beehive was discovered the other day attached to the branch of a tree, about a mile and a half up Glenkinon. It was no doubt a swarm that had flown away unobserved, probably in the beginning of August. The bees had been very industrious, as there were a number of large combs well filled with honey, and firmly fixed to the branch. It had no covering nor protection from the weather, and had been exposed to all the storms sweeping up and down the glen, and to all the heavy rains of the last three weeks. The bees were benumbed with wet and cold, and some had fallen to the ground. The shepherd who made the discovery procured a 'skep,' and cutting away the branch, carried home the colony, the bees making no resistance. When placed on the hearth the bees by-and-by became quite lively, and fed greedily on the sugar supplied to them.—*Scotsman, November 18th.*

*** *Several letters, queries, &c., held over.*

THE

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Editorial, Notices, &c.

USEFUL HINTS.

Weather.—Still a continuance of real November weather—wind, rain, and general mugginess, or fogginess prevailing everywhere. It is not too much to say that ninety-nine out of every hundred readers of the *B. J.* fully realise the need of feeding up their stocks for winter while the bees *can* 'feed up' in its properly applied sense. They undoubtedly consume food (*i.e.*, feed) in winter, but will not, or cannot, store up and seal it over in quantity at that time. Hence it is that feeding up, as understood by the bee-keeper, means giving the necessary amount of sugar syrup in the warm weather of early autumn to provision the stock for five or six months which follow.

Of course this is very worn-out news to the ninety-nine who know all about it, but we must, in justice to the hundredth—who stands most in need of guidance—repeat it once more. The need for clear information on the point is made abundantly plain by such queries as that of last week (No. 270), wherein our correspondent labours under the impression that a driven lot of bees can be kept alive in a combless skep by feeding them through the winter. A very brief acquaintance with the current contents of the *Bee Journal* will, we hope, set him straight on the point for the future. Again, in our present issue, the query appears—'Is it too late to begin to feed my bees?' Elementary questions such as these—and they are constantly cropping up the year round—convince us that recruits are being added to the army of bee-keepers; while we are still further gratified by the fact that we are gaining new readers as well as that the modern method of bee-keeping is growing in public favour.

It may be—indeed, we know it is—a little wearisome to some of our experienced readers, when what they call 'schoolboy questions' occupy space in our columns; but such questions neither weary nor are they irksome to us. A great part of the interest of a teacher should be centred in the beginners of his class, and in this spirit we welcome the simplest bee-inquiry that reaches us. Moreover, bee-keepers, as a rule, are about the most ready of any class of men in the world to help those less experienced than themselves; they willingly take all sorts of trouble at shows and elsewhere to enlighten those who are anxious to learn. Indeed, the narrow-minded bee-man, whose desire is to keep all he knows to himself, is an individual rarely met with, we are thankful to say, and a correspondent—from whom we have had a mild remonstrance as to 'taking up space with the very elementary queries of beginners'—needs but to be reminded of the days when, as a beginner himself, he was no doubt glad of help, to be very lenient in judging of what is for the greatest good of the greatest number in a bee journal.

Wind-Screen for Bees.—Moving into a rather open situation, where the bees will in due time follow, we have realised the need for a something to break the strong south-west wind, which sweeps with considerable force across the high ground on which the hives are destined to stand. It has been quite distressing to us in bygone times to see an apiary so placed that the poor bees were dashed to the ground time after time in their vain endeavours to reach the hive entrance. A long stretch of fir-trees sheltered them from the fierce north-west wind, which, coming right off the Irish Sea, blew 'great guns' at times; but a short distance from the hives the shelter ended, and it was like attempting to cross the rapids of Niagara for the poor bees to pass that sixty yards or so where the wind caught them. Thousands were thus lost every spring and autumn for want of a bit

of shelter a few yards long. Their owner bitterly complained of the wildness of his position preventing him from having strong stocks at the proper time; but it never seemed to occur to him that a little judicious tree-planting would soon form a wind-screen of inestimable value to the bees.

Any one who has watched the skilful dodging by which bees will take advantage of every bit of shelter in steering their way homeward in spring when the 'ides of March have come,' must be convinced of the need for something such as we shall have to lay down where our bees will stand. Where trees cannot conveniently be grown, a tall palisading is a fairly good substitute, but fruit-trees are best, and we shall probably adopt the plan generally followed in Kent, *i.e.*, planting plum or apple trees with black currants in the shade beneath them.

Condition for Wintering Bees.—A correspondent puts exactly the same question as was asked of us several years ago, viz., 'What do you consider thorough condition for wintering?' and we see no reason for varying the reply given at that time, which was substantially as follows:—Taking the standard frame as the one in use, the bees should be wintered on from six to eight frames, according to the strength of the colony when packed up: the two outer combs on each side should be three-parts filled with sealed food; the centre frames may have about a couple of inches of food at the top of each. From four to six of the combs should be well covered with bees on both sides at the end of November to be strong enough in population, and if they cover the whole of the frames all the better; but we always find the space between the outer combs and the hive sides empty of bees in winter and early spring. Two or three inches of drone comb in each hive is quite enough, and it should be the endeavour of the bee-keeper to limit it to this space, but on no account must an undue quantity of drone cells be allowed. If the hive is double-walled, or if provided with an outer case, one stout divider or dummy will suffice; but if only single-walled, one on each side of the combs will be required. These dividers are more workable if not close-fitting, but some warm material must be placed along the sides and bottom to prevent bees from rambling into the unoccupied space during cold weather. The tops of frames are supposed to be scraped clean, and all propolis removed, and then comes the question of pervious or impervious coverings. If the latter are used, a piece of leather-cloth is laid on, with three layers of felt and a board over all. If upward ventilation is decided on, a piece of strong calico, or of 'ticking,' covers the top bars, and on this two or three thicknesses of good felt undercarpeting, or one thickness of the latter and a tray of cork-dust, with a weight to keep all close down on the hive. The nearer readers approach to the above form the nearer will they be towards 'thorough condition for wintering bees.'

Opinions vary as to allowing upward ventilation in winter or not. Personally we prefer to keep the top close—just as the bees will make it if left to themselves—and to ventilate from the bottom. We have come round to this view after trial of both methods.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee meeting held at 105 Jermyn Street, on Tuesday, the 18th inst. Present:—T. W. Cowan (in the chair), Hon. and Rev. H. Bligh, Rev. Dr. Bartrum, Rev. J. L. Seager, J. Garratt, W. H. Harris, R. T. Andrews, the Secretary, and Dr. Rayner and Mr. R. A. Grimshaw, *ex officio*.

Communications were received from Rev. R. Errington (who had previously attended a sub-committee meeting) and Captain Campbell, re-regretting their inability to be present.

Reports were received from the Finance and Examination Sub-Committees, the latter reporting that they had appointed the Chairman and Dr. Bartrum to conduct the second-class examination and publish results.

A letter was read from the Bath and West of England Agricultural Society intimating that the Council were prepared to give the same facilities and support towards an exhibition of hives, honey, &c., at their next meeting, to be held at Bath in June, 1891, as at Rochester in 1890. The Secretary was requested to communicate with the Bristol Association in reference to this matter.

It was resolved to hold the Annual General Meeting of the members on Tuesday, February 24th, subject to the date being approved by the President.

Second-class Examination.—Report of the Examiners.

The Examiners beg to report that they have gone through the Second-class Examination papers, and have passed the following candidates, who are placed in the order of their merit:—

C. Wootton.	W. Hulance.
G. Toon.	S. Hancox.
H. Hill.	H. W. Seymour.

(*Signed*) Thos. W. Cowan.
Edward Bartrum.

FOUNDATION-MAKING IN AMERICA.

The International American Bee-keepers' Association closed its session at noon of Friday, October 31st, and sixty of those in attendance accepted the invitation of Messrs. Dadant & Son to visit their home in a body. The Dadants are known the world over as extensive manufacturers of comb foundation. Mr. Dadant, senior, came to this country from France twenty-seven years ago. He was then a poor man, and purchased a tract of wild, rough land, and erected a log-house thereon. He told his wife that he thought he could make 300 dols. per year keeping bees, and if that were so they could manage to live upon it. He soon became known as a large producer of honey, and subsequently as an importer of Italian queens.

The products of the farm at present are chiefly hay, wine, and honey, but the special object of attraction for bee-keepers is their large manufactory of comb foundation. The log-house has been supplanted by an elegant mansion, with all modern conveniences, standing on an elevation, surrounded by a grove of oak and hickory trees of nature's own planting. The house and gardens are enclosed by a woven wire fence, which is both light and airy. The several buildings comprised in the 'plant' are detached and scattered through the grove, and have been built from time to time as increasing business demanded. Immense quantities of wax are obtained from Cuba, shipped in hogsheads. This wax is heated in a large copper boiler, over a brick furnace, heated by wood. The melted wax is drawn off into copper pails, holding five or six gallons, and put into an apartment containing two shelves one above the other; the door is then closed, in order to keep the wax warm a long time, so that all impurities can settle to the bottom before cooling. It takes thirty-six hours to cool in this way, and the cakes do not crack when cooled so slowly. These large cakes of wax are then stored in a corrugated iron house, which at the time of my visit contained 18,000 lbs. of wax. The elder Dadant remarked that 'the insurance built that building,' meaning that they paid no insurance upon it.

Before the wax is remelted for making into foundation the bottom portion of each cake is shaved off as far as there may be any settlings and melted in a boiler heated by steam pipes. The melted wax is then run into another boiler, where two men, wearing tin kneecaps, sitting one on each side of it, dip the boards to form the sheets of wax, first into water and then into the wax, until the sheets are of proper thickness. According to these workmen their 'largest day's work was 1635 sheets.' A man takes off these sheets, and carries them into another room, where there are many foundation rolling mills. Before putting the sheets through the rollers a man with a brush soaps the rollers, and then another, in front of the mill, inserts the sheet and turns the crank, when it is caught by the workman behind with a pair of wooden nippers, joined together with a spring, the invention of one of the workmen, and the sheets, as made, are piled up one above another. Another workman lays on the top of this pile a wooden pattern, and trims the wax sheets evenly all of the same size. Two young girls, aged about twelve or fourteen years, members of the Dadant family, were engaged in the work of packing the sheets of foundation by interleaving them with sheets of tissue-paper. They worked very fast, and, as their mamma told me, were paid one cent per pound for this work, and could earn seventy-five cents per day, which they had for spending-money.

The packing-house is on lower ground than the one where foundation is made, and the foundation is transported thither in a wooden car on a wooden railroad. When the car is loaded and started it runs down into the packing-house, and when unloaded is drawn back by means of a rope.

The workmen are French, and worked very fast; indeed, they have an interest in doing so, for they are all paid by the piece, and can make two and a half dollars per day. Most of them have worked there since the business was started. They commenced poor, but have acquired homes of their own, and the whole staff appeared happy and contented. There is one thing connected with the manufacture of comb foundation which I forgot to mention in the saving of wax. I saw a barrel, which appeared to contain brown earth, and was told that it was pollen, which settled when the wax was melted, and was formerly thrown upon the land. When the hot sun shone upon it they noticed that wax exuded, and they then constructed large sun extractors. There were about a dozen of them, and the result of last summer's saving was 150 dollars' worth of wax.—MRS. L. HARRISON, 821 *Hurlburt Street, Peoria, Ill.*

Correspondence.

The Editors do not hold themselves responsible for the opinions expressed by correspondents. No notice will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'THE EDITORS of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements*).

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

EXPERIENCES DURING FORTY YEARS.

[460.] In continuation of my experiences between 1878 and 1890 (425, p. 534), I found early one morning at the end of June a queen-bee very nearly dead. She was lying on her back near a window. I tried to bring her

round by warming her in my hand and putting some honey to her mouth. My hives had all swarmed once, and one or two were about to swarm a second time; in fact, one had done so the day before. It was rather a troublesome swarm. I had thrown it down upon a sheet close to an observatory hive entrance. The bees were not disposed to enter, and I got on my hands and knees and pushed in the queen and other bees with her, but two or three times she turned back again. However, I managed it at last. I thought the queen in the house might have been a second queen in the swarm of the day before, and therefore a young one. I sent it to my friend, the Rev. Mr. Sanders. He examined it with a microscope, and had no doubt it was a fertile queen, at least one year old. None of my bees were queenless, and I cannot account for it. There were no other bees in the room.

Another incident was as follows:—Early in October I joined two hives of bees. One of these was probably queenless, as they had not killed the drones. They were joined without fighting, but after three weeks the drones were still there, and I felt sure there was no queen. I added a small swarm with a fertile queen. For some days there was no change, and I feared the queen was killed. After about five days, as I was watching them, about 2 p.m., suddenly there was a noise, and the bees rushed out of the hive as if swarming, and within ten minutes were back again. They had not settled. In twenty-four hours they were killing the drones, and in another day or two I saw a few of the bees with large lumps of pollen on their legs, and in the following spring it formed a healthy, prosperous colony.

I am occasionally asked by those who wish to begin bee-keeping, 'How must I begin, and what sort of a hive must I get, &c.?' I can only answer these questions by asking others, such as 'Have you a suitable place for keeping them? is the surrounding district good for bees? and have you any knowledge of them?'

If you will allow me, I will give your readers a few of my experiences in *situations* for bees during the last ten years. I live in a windy 'situation,' and I have found it necessary to change my hive-stand twice, not perhaps altogether from wind, but from other causes. Ten years ago I erected a wooden room, twelve feet square, in which I had eight hives, four of them facing south-east, and four north-west. The south-east bees swarmed fully a week before the others. I had shortly before planted trees round three sides of the house, and my own house was placed perhaps forty yards to the north and east. In addition, I put up some wooden fencing, so as to protect the bees when going into their entrance. A window, at which one of my household generally sat, looked out upon the bee-house: this is a very great advantage, and I thought for some time that the situation was very satisfactory. The bees nearly always settled on small trees a few yards away, not always on the same tree, but very nearly so. In a very few years the trees, especially those close at hand, grew up to a height of eight or ten feet. A few of those at the back, more particularly those on which the bees usually settled, were still small, but the bees flew over the higher trees in order to settle on the old spot. I do not think that in this situation I ever lost a swarm. My hives, however, were never very crowded with bees, and I tried to find out the cause. There was a sort of eddy in the corner. Plants growing there were blown in all directions. When the home-coming bees were sixty yards from their hive the wind, when strong, as was often the case, blew them about, and I have watched bees blown backwards and forwards for some minutes, and then dashed to the ground, perhaps never to rise again. I therefore decided to try another place for some of my hives, and I got a bee-house built holding two hives only, and light enough to be carried by two or three men. This was put into a more sunny situation, better in every respect, as I thought, but there was no window looking out upon it.

I often see some of your readers asking how and when they should remove their hives, so I will just say what I do. I have a maximum thermometer, and in winter I keep a good look-out upon this thermometer. It is placed in such a situation that it is acted upon by the same hot and cold influences as the hives to be moved. I set the indicator every two or three days, making a note of it. If I find that the heat has not risen during the preceding three weeks above forty degrees Fahrenheit, I consider I may move with safety. Bees do not fly out much under forty-two degrees. I do not, however, choose a very cold day to remove them. I prefer a heat of thirty-eight degrees or forty degrees, as it might so happen that a few bees fall from the cluster; but at this heat, if they do, they are not at once chilled, but can climb up again. I cover the entrance with perforated zinc, and two men move one or two hives on a hand-barrow as quietly as possible, and the bees having forgotten their old surroundings do not go back.

This situation, however, had a fatal drawback. I usually had some one watching in swarming seasons, but the swarms mostly flew away, and I felt the bees must go elsewhere. Last winter I moved them to an enclosed garden, well sheltered and sunny. The result has been much better. The bees when swarming selected the same apple-trees, five or six yards away, and I had this year what I never had before, namely a 'virgin' swarm in September, and after that a cast. I do not know why it should go by the name of 'virgin,' but this is the local name. The old queen, which led off a swarm early in June, came off again in September, followed by her daughter a few days afterwards. Though both these swarms were totally unexpected, they were easily seen and secured, and both settled on the same spot.

A friend of mine once told me that his bees, which were placed in front of a sunny garden wall, and had plenty of suitable bushes

and fruit-trees to settle upon, almost invariable flew over the back wall and settled among some dead sticks.—A Bee-keeper Past and Present.

BEES AND FARMING.

[461.] Referring to your leader in last week's issue, you are clear upon the weight and quality of clover *cut and dried* being improved by bees' visits, but is the *pasture* improved by bees' visits when *being grazed* by sheep? Is not the sweetness in the flowers a help to fatness, and if so do not bees rob that which will be of value to a farmer?—Geo. M. Thompson, *North Lincs.*

[It would be difficult to give a more complete reply to the above than is contained in the following, reprinted from the *B. J.* of July 15th, 1886.—Eds.]

Is Clover on which Bees Work Lessened in Quality as Pasture?

The answer appears easy, but it is not so easily proven. Whether we consider red clover, on which humble-bees, or white, on which honey-bees, work, the reply equally applies. If plants of any kind be allowed or made to bloom, and remain unfertilised, their blossoms last longer than when fertilised: but when eaten fresh as pasture, or dried as fodder, there is very little more (if any) nutrition in them than in the same bulk of leaf. Of course, they are plus the saccharine matter of dried-up nectar ungathered by insects, which saccharine matter, we must remember, is obtained by the leaves of the plant *from the air*, not from the earth. Unfertilised flowers bear a greater profusion of blossom (in the efforts of the plant to reproduce itself), consequently a greater bulk of nectar per acre; and I should say yield more fattening fodder than when fertilised, because of the sugar remaining in the dried heads of bloom. As fresh pasturage it is observable that cattle 'pass' clover blossom, not eating it by preference. On the other hand, flowers which are fertilised by insect or other agency rapidly fade, cease producing blooms, and at once make a call on the plant and on the soil for starch (fat-forming), albumen (flesh-forming), nitrates, phosphates, and sulphates, compounds of which are stored in the seed. Now, if seeds are soon ripened, and easily shed, cattle have little chance of obtaining as food the valuable carbonaceous and nitrogenous compounds contained in them: but in the case of clover, the seed-pods remain closed and dry for a considerable time, hence clover gives to the hay containing it a weight, richness, and strength it would not possess were the clover to remain unfertilised by our bees. The farmer, in carting away such rich clover-hay, leads off a weight of matter out of the earth itself, which insect help alone enables the plant to assimilate, for the value of all produce taken from our land, whether transferred on to the bones of sheep and cattle or stored by for winter, is enhanced by its containing the seeds of the plants grown upon it. This applies to cereals, as we know, as well as to hay and clover. I therefore conclude that the visits of bees to clover-fields increase their value as pasture or fodder-growers. Bees undoubtedly increase the yields of fruit-gardens, and clover-seed is equally a fruit with the apple, the strawberry, and the acorn.

ARE BEES THIEVES?

[462.] Some agricultural reporter, I see, has been writing to a weekly newspaper, and you have reproduced his opinions for our edification, accompanied by a reply from the pen of Mr. Woodley, which the writer of the article ought to have been satisfied with as a complete refutation of his very erroneous conclusions. Of course, if people are in earnest, it is not fair to treat their remarks with either ridicule or contempt: they must be dealt with in as serious a mood as we can command, although with one hand we may be forced to hide a smile. The picture of the highly conscientious farmer sweetening up his hay with molasses as he loads it or stacks it, may be one very true to nature: but to say he does it to make up to his cattle the loss they sustain by having the nectar of his plants stolen by the bees, is about as reasonable as saying he gives salt to his animals in order to compensate them for the salts washed out of the soil by heavy rains. It is totally untrue in both cases. The farmer knows nothing about his hay being robbed of sweets, nor salts washed out of soil: he simply finds his action suit his purpose, and he does it. If he knew anything at all about the results of nectar being taken out of his fields, he would (unlike the writer of the article in question) know just a little more than the bare fact of nectar being stolen, and that little is—if plants offer tempting baits for insect visitation, it is for their own (the plant's) selfish ends, not for the sake of the insect. If the bait succeeds in drawing insects to pay visits, the farmer may be sure the visits are so necessary to the plant that it will reap the greater benefit out of the transaction. Let the doubter split open a faultily shaped apple, or, indeed, examine any other disproportionately shaped fruit from any tree or plant visited by bees, and he will find the pippin, or seed, lighter where that division of the flower has failed to be fertilised: and besides this, the cellular tissue of the fruit itself is not formed as a covering for such a faulty seed. Where insects, not hive-bees alone, abound in any country in the globe, there do prosper and luxuriate such plants as require insect visitation: where the plants dwindle away out of existence, they are accompanied in their exodus by the insects.

Bees are thieves, if you like, from each other, when they are strong enough to overcome; but let him who writes (not as 'a light shining in a

dark place' for the correct guidance of the agriculturist), trust the plant to look after itself in the matter of keeping an open-air sweet-shop, instead of using his pen as a will-o'-the-wisp by writing something (innocently, perhaps) quite contrary to the teachings of science or of scientific farming. What would he say, I wonder, if he were told that the nectar itself was *stolen* by the plant out of the air in quite as shameless a manner as in the proceeding of the bee? Yet so it is. The weight of crop, seed, or fruit, is heavier as carted out of the field in districts where insects such as humble and honey-bees are plentiful, than where such is not the case.—R. A. H. GRIMSHAW.

ABOUT EXTRACTORS.

[463.] I was surprised to see the letter (455, page 561) from Mr. Meadows, deprecating the use of gearing in extractors, and, with all due respect to his opinion, can't help concluding that he has had more experience in the making than in the use of an extractor on an extensive scale. Having tried both ways, I have fully made up my mind as to which is best for me, and were the gearing to cost as much as the extractor itself, I would not then be without it.

I know what it is when there is a lot of honey to extract to burn the midnight oil over the job (my time being fully occupied in the day), and to turn, turn, and yet all the honey would not leave the combs, to say nothing of it requiring another pair of hands to hold machine steady.

I also adopted the plan of having legs to extractor to fasten it securely to floor, to prevent it moving; and, secondly, by having a wheel at end of top bar, connected by a strap to smaller wheel, in place of usual handle, and round she goes as fast as you like; and now, with the aid of a Meadows' uncapping stand, and a boy to turn, it is mere child's play to whip the honey out, whereas formerly it was the most laborious job connected with bee-keeping, my only regret being there was not more honey to extract this year, although I ought not to grumble, seeing that my apiary averaged twenty shillings' worth of honey sold per stock. I know some people will say, 'Won't this great pace damage the machine, and break the combs?' Well, I contend if the machine is securely fixed, the greater regularity of motion we get with gearing than when turned in the old way does away with any extra strain on the machine, and when worked intelligently—*i.e.*, turned gently first one side, then reversed, and the other side treated the same, then finish both sides as rapidly as machine can be made to turn—there will be no broken combs.

The only fault I can find with this kind of gearing—and perhaps Mr. Meadows will tell me how to rectify it?—is, if by chance you should let go the handle when the machine is revolving rapidly, the big wheel makes a most horrible noise, quite sufficient to 'wake the baby' if by chance it should be comfortably asleep when the extracting begins.—NORTHANTS AMATEUR.

[The above letter fully justifies the observations in our footnote to the letter (No. 431, page 536) which gave rise to that of Mr. Meadows. We may, however, venture to assure our correspondent that most prominent bee-keepers, of whose opinions we know anything, agree with Mr. Meadows as to gearing. Besides, does not our correspondent himself, in his manner of working with a geared extractor, take steps to overcome the very disadvantages in the non-geared one of which he complains? Referring to the latter, he complains that it 'requires a second pair of hands to hold the machine steady,' and yet has his geared machine *fastened securely to the floor*, as well as a boy to do the labour of turning. The 'horrible noise,' as 'Northants Amateur' puts it, is considered a great objection to geared extractors by many, and several other faults in them—not overlooked by our correspondent—tend rather to make it uncertain, even from his letter, whether the simple non-geared machine is not the most suitable for general use. At all events, it confirms what we have already said—viz., that opinions differ, and will, we suppose, continue to do so for all time.—EDS.]

BEES AND CHRYSANTHEMUMS.

[464.] Very probably the chrysanthemums referred to by 'Foxglove' (query 263, p. 551), is one called 'Hermione.' Grown under cover (as it probably was last year) and fully expanded, it is pure white. Out of doors it blooms a purplish pink, growing whiter, however, as it reaches maturity, but never a pure white. All chrysanthemums are liable to sport, and flowers of two colours may be seen on the same plant. I have even had a flower white with a blotch of yellow.—E. FAGG, *Rochester, November 19th*, 1890.

THE HONEY COMPETITION.

[465.] I am glad to see by *B. J.* of November 13th that the above has come to an end. I consider such a challenge should never have appeared in your columns, and Mr. J. D. McNally could easily have obtained the satisfaction he desired by writing either to Mr. Rae or Mr. Howard.

Your decision will probably serve to put an end to all such challenges. We hear a lot about new bee questions, but I think your decision will be the best answer we have heard of for some time past (for Irish bee-keepers at least). I hope Mr. J. D. McN. will try again at Castle Douglas next September, and be satisfied with the result, as none but the most competent of judges make the awards there. As Mr. Woodley (439) has taken part in the discussion, may I be allowed to say a word to him? Mr. Woodley found his way to Dundee, and we were well pleased with his turnout of honey. He received the awards he justly gained, but if Mr. Woodley had tabled the same honey at Castle Douglas show I fancy he would not have carried off first honours, or, so far as I can judge, not even third.

Should we have a better season next year Mr. Woodley would be gladly received by the bee-keepers in that district, as we always welcome bee-keepers of merit in as hearty a way as we can (what do you say on this point, Mr. Howard?). To guard our expected guest (Mr. Woodley) against being too late for the C.D. show, he will find it a little over forty miles north of Carlisle. It is a market town, and well known to business men, and is only five miles south of Dalbeattie, now famous for its granite and honey.—A HONEY SHOWMAN.

MOVING BEES TO HEATHER.

[466.] I noticed recently a query (419) in the *B.B. Journal* regarding the conveyance of bees to heather, to which you directed the attention of 'Scotch Heather,' but up to the time of writing without eliciting a reply. Would you, therefore, kindly allow me to describe how we transport our bees to the heather, which is twelve miles distant? The journey, of course, is made during the night. Each stock of bees has the entrance to the hive carefully closed with perforated zinc; and this year, as a means of giving additional air without liberty, and preventing overheating, the roofs were taken off the hives and a piece of stiff white net nailed on instead. After this had been done the hives were placed on lorries, with their entrances turned to the outside of the conveyance to allow the fresh air freely in, and steadied on their bottoms with straw to prevent their being shaken. A start was then made for the Pentland Hills, which were reached without mishap at one of the 'wee short hours ayont the twal.' In one or two cases the bees had got outside, but so long as the hives were cool no heed was paid to them, as when bees come out at night they are by no means inclined to fly unless approached with a light. The hives were all in position before sunrise, and the bees did not lose a minute of working time. We were moderately successful at the heather this year, a neighbour and I being in the happy position of not only clearing this year's expenses, but having on hand sufficient to clear next year's, besides supplying all our own honey requirements.—HUGH PATERSON, *Corstorphine, Midlothian, November 18th*, 1889.

[Our correspondent would see in last week's *B. J.* that a reply to 'Augustus' from 'Scotch Heather' did appear on p. 561.—EDS.]

ANOTHER SUPER CLEARER.

[467.] The super clearer I now give particulars of is a very simple affair. I made three of them some ten years back, and have found them answer well. It consists of a piece of board 18 inches square and 1½ inches thick. About 6 inches from one edge of this board a circular hole 2 inches in diameter is cut half-way through the wood, and in the edge of the 1½-inch board I bore a ⅜-inch or ½-inch passage right through into the circular hole already mentioned. Into this passage is pushed a tube of perforated zinc ⅜ inch diameter and about 12 inches long. The bees escape by means of the tube, and once out they never make any attempt to get back. Robber-bees also may try to get in at the bottom edge of the super as it stands on the board, but never go near the open end of the tube. This is what we have used in years gone by.

When I take our straw supers off, I place them on the board over the 2-inch hole, and leave the bees to make their way out, which they soon do. The same with sections: so long as no bees can get into the sections from the top, I can put the 'clearer' board anywhere with a crate of sections on it, and let the bees come out as they like. I always lend these clearer-boards, or, indeed, any of my bee-gear, to my neighbours gratis, and they are well used. I have sixteen stocks of bees, including three straw skeps, and one stock in the hollow trunk of an old willow-tree, about 4 feet in height, but I unfortunately cannot get any honey from that one. I also have one skep which gave me a fine harvest this year. It has an 18-inch square board on top, and on this I set a super containing fourteen shallow frames. When these were nearly full I set on a crate of thirty-two one-pound sections beneath the shallow frames; and besides these I got a small crate of ten sections, filled on that one hive, 98 pounds in all. But after all this luck with the skeps I like the bar-frame hives best.

I have made and used this summer a new floor-board, a non-bee-crusher, damp-proof, removable, will fit under either body-box or super, and having a movable porch for either summer or winter. I will give you an illustration of this soon.—H. SEAMARK, *Willingham, Cambs.*

LOSING SWARMS.

[468.] We have nothing very satisfactory to report and yet little of which to complain. Our bees have kept healthy throughout the year, and so increased that had we only been successful in keeping a splendid swarm we had in July, I believe, despite unfavourable weather, we should have had a fair supply of honey. As it is we only had nine sections (eight of which were unfinished) and seventeen pounds of extracted honey from our two hives.

Respecting the swarm we had in July, the old bee-keeper who took it for us said that it was one of the largest he had ever seen. This old man is a persistent adherent to the old system, and attributed the swarm's determined departure to the modern bar-frame hive treatment! In the first instance they swarmed up a tree in a neighbour's garden, were taken and comfortably hived in the evening. Next morning they went off again, swarming this time up a tree in the garden next door to where they went the previous day. Our old friend took

them in the skep and left them to bring to us in the evening; but he had only been gone a short time when they suddenly started off for the third time, rising very high in the air and going in the direction of the woods, but flying so high that they were soon lost to sight, and no one was able to find any trace of them. All we could hear was that 'a very large swarm had been seen flying high in the air, in the direction of the woods.' A gentleman in the neighbourhood lost three swarms about the same time.

We purpose changing the position of the hives, and suppose it will be best to do so when the winter is further advanced? The bees still come out for a little while on fine days.—M. A. G., *Kent*.

[If the bees cannot conveniently be moved by degrees when the weather is fine and warm enough for them to fly abroad freely, they should be left till cold weather has confined them indoors for several weeks; and, when moved, some temporary arrangement must be made to alter the outer appearance of the hives as much as possible, until the bees become used to their new location.—Eds.]

A CHARACTERISTIC AMERICAN LETTER.

That will do for you, Brother Demaree, please arise and let us be dismissed: and you, living in *Christisan*-burgh, say in cold type that you force all the honey into the surplus cases, and at the close of the season take all the honey from the hives and leave the bees to look out for themselves. Ain't that tough? You know they can't take good care of themselves without honey, and you are ashamed to come right out and say you rob them and leave them on purpose to starve to death, so you use smooth language. I'd give five dollars to see you say grace over some of that honey when it is on your table. 'Sentiment' is it? Mr. G. B. Jones fills five columns of the *C. B. J.* trying to prove that a man should dispossess himself of sentiment and kill his bees. Well, I pity the man that has no sentiment, or none of the finer feelings of justice and right, like Daniel Webster had when he wanted to 'let that woodchuck go.' A man can be too sentimental, and he can so blunt his sensibility that he degenerates into a savage, who would as soon kill a man as you would a bee. Some have so far lost all sensibility as to not only rob the little bees of all the fruits of their labour, but *torture* them by starvation on purpose to cause their death; but the finest point comes when, as Mr. Demaree says, he makes the starving bees take care of empty combs during their starvation in order to keep the moth from them. Oh! ye *business* men, what high aspirations, noble sentiment—and still such people expect to go to Heaven! I suppose their blunted minds cannot realise that a bee can suffer as much accordingly while starving as a horse. You think they are so small that they can't suffer. Well, is not a whole swarm of bees as big as a lamb? Now, suppose you don't want any increase in sheep, would you leave the lambs in the field away from their mothers to starve in the cold, or, as you say, 'to look out for themselves?' Business, is it? Well, if people let all their actions be governed by business principles of that character, subduing all sentiment, smothering their conscience, how civilised would you be! What is it that makes people civilised anyway? Won't some of you say that over again what you were saying a few years ago about the poetry of bee-keeping and the intelligence of bee-keepers, their perceptibility, &c. Oh! ye people, who blow hot and then blow cold. Dishonest, is it, to weigh the sections with the honey when selling it? Brother Demaree says it is: but I have been in the grocery business and am well acquainted with these terrible honest people. I don't mean to infer that Brothers Demaree or McKnight are dishonest by any means: but you have heard of him that strained at a gnat but swallowed a camel—well, it's him I'm talking of, and the woods is full of them, those very honest people who owe me for groceries they bought of me many years ago. My experience has taught me that where honesty is on a man's tongue it seldom gets down to his pocket. Mr. McKnight is right so far as selling tea and some of the finer goods is concerned: at least I never practised weighing the paper with such goods: but custom makes all laws that are too small or unimportant for our lawmakers to bother their heads with, and I followed the customary rules or law, call it which you please, for what is law but the consent of the majority, and if the people were all honest and could remember what all the laws were, there would be no need of any written law. I followed the law of custom, and did not deduct the weight of sections from honey, or the pits from peaches or prunes, or the rind from pork or cheese, or the bone from fish or ham or other meats, or the thousand and one things I might mention that are sold as they are, including the canvas on hams, bran in meal, &c. These things are all sold as they are, and a price set on them *accordingly*, to save the trouble of deducting weight of those portions not eatable, and I hope I did not buy honey of any man who took all the bees' stores, and left them 'to look out for themselves.'—John F. Gates, *Ovid, Erie Co., Pa.*—(*Canadian Bee Journal*).

CLIPPINGS.

Something like an Order for Beehives.

A 'Honey Cough Remedy' Company of Brooklyn, N.Y., have procured 12,000 handsome exhibition hives, made of black walnut, and are placing them in drug stores to advertise their remedy. This news is sent by Mr. E. L. Pratt's father, who says 'it will greatly popularise honey.' It is, no doubt, a novel way of advertising, and will probably add many shekels to the Company's income.—*American B. J.*

BEE STINGS A CURE FOR RHEUMATISM.

Mr. Jas. Crossfield's (of Arnside) gardener says that for a considerable time previous to a fortnght ago he was tormented with rheumatism in his shoulder, and could not get his coat on or off without assistance. Owing to something he heard, one day, when in the garden, he caught some bees and allowed them to sting his shoulder. The next day he experienced a nice warm sensation in the shoulder, and on the second day he could put on his coat without assistance, and has not felt any rheumatic pains since.

Queries and Replies.

[274.] *The Chemical Properties of Honey, Wax, Propolis, and Pollen.*—What are the principal chemical constituents approximately of honey, wax, propolis, and pollen? and by what means is honey-comb manufactured by bees?—J. S., *Stonehaven.*

REPLY.—Speaking generally, all honey is little else but carbon, hydrogen, and oxygen: hydrogen supplying twelve atoms, to carbon and oxygen six each. Wax has nearly the same composition, with the addition of cerotic acid, a highly specialised hydro-carbon. Propolis is a resin, and is also built up of carbon, hydrogen, and oxygen, the two former in the respective proportions of C_{10} H_{16}, the oxygen varying with the source from which it it is gathered. Finally, pollen is a complex arrangement of carbon, hydrogen, oxygen, nitrogen, sulphur, and phosphorus. There is naturally no formula for pollen, as it will vary in composition with its source. As to the means used by bees in the manufacture of honey-comb, warmth and idleness in the hive convert the sugar of bee-food into a fatty secretion, which oozes through disc-like glands under the abdomen of the worker-bee, and this, on contact with air, hardens into little flakes. When the worker intends to supply wax to the hive she reaches for these wax-flakes with her knee-pincers, and, passing them to the mouth, partly masticates the wax, working it with her jaws, and mixing it with a salivary fluid until it appears a frothy, plastic mass, which may be easily shaped into honey-comb by the wedge-shaped head of the worker, assisted with its foot-pincers, and jaws, capable of admirably planing and paring down all knobs and excrescences of wax to their proper level.

[275.] *Securing Surplus in Late Districts.*—Would you kindly advise me what class of hive I should adopt for a district where bees seldom swarm before the end of June or beginning of July. Swarming so late in the season they can get no surplus from the clover, as it makes them busy to get combs built before the heather is ready. I have at present two strong skeps, but in the spring I would like to adopt a different class of hive, and, if possible, one that would not be likely to swarm, but would give me the best result in surplus honey (in the comb).—WM. HENDERSON.

REPLY.—By adopting the frame hive it will not be necessary to depend on swarms for surplus honey. Your efforts will then be devoted to working up the strength of the bees during May and the forepart of June and to the prevention of swarming, so that when clover is in bloom, by the second or third week in June, your bees will be in 'form' for taking full advantage of it. A moderate-sized hive, say, of ten or eleven standard frames and facilities for surplus, will suit you best.

[276.] *Bees Dying Off.*—One of my stocks, formed from three casts about the middle of June, has a lot of bees lying about outside, some dead, some dying. When they were examined about the end of August there was no brood, but I saw the queen; they were packed up with at least twenty or thirty pounds of sealed honey and a cake of hard candy. The packing consists of three thicknesses of felt and a little besides. Can you tell me what is the matter with them?—E. M., *Harleston.*

REPLY.—We should judge that the dead and dying bees are robbers, which have been repelled and killed when endeavouring to appropriate the food of your stock. If the bees are prepared for wintering as described, there is no reason why they should die off as stated.

[277.] *Feeding Bees in Winter.*—1. Is there any danger in feeding up so late as this? 2. Will six standard frames winter a first swarm? 3. When should I give additional room?—C. THOMSON, *New Deer, Aberdeen, N.B.*

REPLY.—1. There is more difficulty than danger, but a good deal of both if any large amount of feeding is required. If the stock has a few pounds of sealed food in the hive we should advise soft candy set over the frames as the best feeding for winter: but bear in mind that a good-sized cake, weighing four or five pounds, should be given. If you are not expert at candy-making, purchase from a good maker, as your bees cannot survive the winter on candy which will become hard as a stone when on the hive.

[278.] *Italian versus Native Bees.*—Are Italians or the common native bees the most profitable? and do you think the Italian bee would succeed here in Wales?—JOHN JAMES, *Carmarthen.*

REPLY.—We decidedly prefer the native bee to the Italian for profit and for all-round superiority. After several years' trial our most experienced and successful bee-keepers have generally discarded Italian or Ligurian bees in favour of the old black or brown variety. Carniolans, both pure and the cross between them and the native bee, are now on trial here, and a few seasons will prove whether they have 'come to stay' or to follow the Ligurian, homeward.

Echoes from the Hives.

Warbleton, Sussex, November 21st, 1890.—The bees have at last settled down pretty quietly. I have never noticed them so bent upon prying into each other's pantries before as they have been this autumn—not because they are short of stores, as they have been fed up sufficiently where they needed it. The season here has not been so bad as 1888; it was feed, feed, all round then. This year several stocks gathered enough, some more than they needed, but only the natives did this. The Carniolans have done nothing, and were quite destitute of stores in the hives, but with a good bit of equalising and a considerable amount of sugar-boiling, all are well provisioned and snugly tucked in for winter.—Hy. Neve.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

W. H. Ley.—Thanks for suggestion; will look at the paper named. The delay you complain of has been unavoidable, but is now, we hope, remedied.

Arthur Fuller.—The heather sent is of the right kind, but its honey-producing qualities will depend very much on the altitude at which it is grown. In low-lying, damp moorland not much honey can be got from any variety of heather bloom.

Lover of Bees.—*Wood or Straw for Bee hives?*—Taking into account the advantages and disadvantages of wood and straw as materials for beehive-making, it is conceded that wood is the best for all purposes.

Api-Poetical.

You never hear the bee complain,
Nor hear it weep nor wail;
But if you wish it can unfold
A very painful tail.

NOTICE.—We would ask our correspondents to take notice of the removal of our office, and request them in future to address all communications relating to the literary department, &c., to 'The Editors of the "British Bee Journal,"
17 *King William Street, Strand, London, W.C.*'

*** *Several letters, queries, &c., held over.*

STUNG!

All summer long, with gloves and veil,
I've kept myself protected;
Yet now must tell a sorry tale
About one spot neglected.

My nose's tip the veil would touch,
And oft I speculated
Whether, if bees assailed me much
(For I am sore *bee-hated*),

Some time or other I might get
A sting on the projection
Of my proboscis, through the net,
At the bee-veil's intersection.

It seemed a most unlikely thing
That any insect archer
Should thus exactly aim a sting;
So fear took its departure.

But wise philosophers have taught
Truth is more strange than fable;
And my delusion came to naught,
Like the old tower of Babel.

Achilles could not wounded be
Save in one spot—his heel;
Yet there, with dire fatality,
Was aimed the deadly steel.

And I, impervious everywhere
Save at my nose's tip,
Received a wicked dab right there,
That made me 'tear and rip!'

It was a bright and lovely day,
That third of this November,
But, oh! the mischief was to pay,
As I shall long remember!

While I was packing up my bees
With forest leaves and chaff,
And feeling perfectly at ease,
Too confident by half,

A Parthian arrow hit my nose
Just at its *ultimatum*,
And a not mild expletive rose,
'Confound the bees, I hate 'em!'

My nasal organ quickly swelled
To twice its usual size;
While tears of pain and anguish welled
From both my weeping eyes.

My none too lovely phiz was shorn
Of all its scanty beauty;
And for three days I went forlorn,
Unfit for public duty.

I now must have a glass-front veil,
Or a wire face-protector,
And prove no more, as in this tale,
A stupid nose-neglecter!

W. F. Clarke.

—*American Bee Journal.*

THE

British Bee Journal,

BEE-KEEPERS' RECORD AND ADVISER.

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Editorial, Notices, &c.

A SEVERE BEGINNING TO WINTER.

The extreme severity of the change in the weather during the last few days will, no doubt, cause some anxiety among a portion of our readers concerning the effect it may have on the safety, or otherwise, of their bees; and those who hold to the opinion that a single-walled hive of half-inch timber affords all the protection necessary for a colony of bees in the severest weather, may well be excused for feeling a twinge of uneasiness as to how their pet theory will stand the test of so severe a winter as, according to present indications, appears to be in store for us.

We have never been among those who advocate such elaborate precautions against extremes of weather as double-walled hives with several inches of warm packing between, and an overhead covering of protective material several inches thick; nor have we taken very kindly to the other extreme of allowing nothing beyond a single wall of very thin wood between bees and an outside temperature of twenty or more degrees of frost. We have for years been working on a line between these points, and it is worth consideration on the part of the advocates of slight single-walled hives whether, in view of the prospect before us, it will not be wise to incline a little to the safe side this winter.

In this connexion we have read with especial interest the weather reports of the Meteorological Office for the past week. From these we gather that the snowstorm beginning on Thursday last, and continuing with more or less severity for several days, extended over almost the whole of the British Isles, scarcely any part having escaped, and large quantities falling in places where snow is seldom seen. In the eastern portion of the county of Kent the fall was exceptionally heavy, snow covering the ground to a depth of eighteen inches or two feet about Tunbridge on Thursday morning. Between that place and London the downfall gradually lessened; on Friday morning, however, the snow lay a couple of inches deep in all parts of the metropolis, while in our own part of Kent the temperature was, according to a correspondent of the *Standard*, very low on the same day. The writer says:—

'The following readings of temperature were taken here yesterday (Nov. 28th). The thermometer is exposed two feet ten inches above the ground, facing west:—9.30 a.m., 24° F.; 2.30 p.m., 22° F.; 4.20 p.m., 7° F.; 4.50 p.m., 5° F.; 6.45 p.m., 11° F. The remarkable sudden drop in the afternoon took place when the sky became clear. After five p.m. it was again overclouded, and temperature consequently rose. Twenty-seven degrees of frost on a November afternoon is so rare a reading as to be probably worth recording.'

Some interesting particulars, as showing the remarkable variations of temperature in different parts of the kingdom, are given in the *Standard* of Saturday last, from which we cull the following:—

'The frost, which was sufficiently intense on Thursday, was in many parts of England even more severe yesterday. Among the lowest readings reported to the Meteorological Office were 17° at Dungeness, 20° at Nairn, 21° in London, at Cambridge, and at Parsonstown, King's County, Ireland. At eight o'clock in the morning the temperature was only 21° at Parsonstown and Dungeness, 24° at Oxford, and 25° in London and at Aberdeen. The temperature was generally lower yesterday morning than on the previous day over the south-east of England; but some considerable rise of temperature was shown in Scotland and Ireland. In the extreme north of Scotland

the weather was warmer than in London by 15°, and 20° warmer than at coast stations in the south of England. The intense cold in London yesterday is altogether without precedent in November. The minimum reading of 21° is the lowest in the corresponding month during the last thirty years, with a single exception, which occurred on November 19th, 1871, and during that period there have been ten winters without so low a reading being once recorded. Throughout the day yesterday the thermometer did not rise above 25°, which is 4° colder than on any previous day in November during the last half-century, and no equally cold day has occurred in any of the last four winters. The mean temperature for the whole day was only 23°, whereas, according to a calculation by Mr. Glaisher of the mean daily temperature at Greenwich for every day from 1814 to 1873, the mean temperature of the coldest day in November in sixty years was 23°, on November 24th, 1816.

'Last evening snow was still falling in London and at several other places in England, whilst scarcely any change was shown in the barometer readings since the morning. The temperature in London was only 23° at six o'clock, and the frost was still intense over the whole of the south and east of England.'

Beyond our own country, indications everywhere point to the probabilities of an exceptionally severe winter. Throughout Southern and Western Europe the weather has been even more trying than with us. At Paris the temperature was 25° below freezing-point, and readings of the thermometer were almost equally low in other parts, 11° being recorded at Berlin, 12° at Brussels, and 22° at Biarritz.

Continuing the curious anomaly of the extreme north of Scotland being 20° warmer than the south of England, we have it recorded that at Bodö, in the north of Norway—which is within the Arctic Circle—the temperature was 39°, or 32° warmer than at Paris, and 14° warmer than in London at the same hour. If we bear in mind, therefore, how all the above indications point to a probable verification of the forecast, given recently by a high authority on meteorology, that the winter of 1890–91 will be one of exceptional severity, bee-keepers will do well to leave bees severely alone where the hives happen to be 'snowed up,' neither removing the snow from entrances nor roofs until a thaw sets in, and, where there is known to be any scarcity of top coverings, to add a few thicknesses of any warm material available. Very populous colonies have in themselves an inherent means of defence against extreme cold in their very numbers, for, as our dear friend, the late William Raitt, used to say, 'the best winter packing for bees is *bees*;' but it must be borne in mind that the majority of stocks will not at this date more than cover five or six frames of comb, and these cannot be included in the above category.

In the ordinary British winter the amount of protection from the weather given to bees by bee-keepers fairly conversant with modern methods is amply sufficient to carry them safely through; but it is open to some doubt whether a good many stocks will not succumb if only such protection as we have too frequently seen be afforded, and supposing that such abnormally low temperatures as we have already experienced are to continue for any length of time. We make these observations in no alarmist spirit; indeed, so far as our own bees are concerned, we shall take no precautions at all beyond those usually adopted, feeling assured that the outer casing which covers the actual body-box or hive proper will be protection enough for any amount of cold. But we have in view the very small amount of care some bee-keepers seem to consider sufficient to bestow on their bees, and these will have only themselves to blame if an unusually severe winter finds them with a good many dead, or very much weakened stocks in the coming spring. It is solely to these that we address a timely warning word, because of the regret which will be felt by all who take an interest in the pursuit should a severe winter be followed by the discovery that it has entailed a large percentage of bee-losses among our readers.

DEVELOPMENT IN THE HONEY-BEE.

By R. A. H. Grimshaw.

(*Continued from p.* 544.)

Whatever, then, the homing power is, its influence is terminable in the bee at both ends of the journey; it gets lost at one end of the trip frequently, and ceases entirely at the home end, giving way absolutely to the senses of sight, smell, hearing, and touch, which come into greater play one by one as distance is lessened, until, strangest and most incomprehensible thing to my mind, all these really and truly God-

given senses, impulses, instincts, and what not, utterly break down with our bees as with many animals just at the moment when we think them to be in fullest force, when the routine so dumbly and unreasoningly followed is artificially or accidentally interfered with, or designedly disturbed by enemies, precisely as interference with the run of a troop of ants upsets everything, and these marvellously endowed insects cast about in all directions in apparently (?) the silliest manner. The slightest use by either ant or bee of that reasoning faculty some scientists have done so much to *endow them with*, would instantly surmount the difficulty and deliver them from danger. But not so; outside interference has sundered a groove habitually and instinctively traversed, and on outside interference must remain the onus. The repairing and ultimate remedying in part of partially destroyed structures by ants, bees, and wasps, is, I admit, a strong argument in support of the theory that they possess what we term reason; but in these cases the gap is bridged over, and, so far as the bee is concerned, the old channels are traversed, the old ruts resumed, holes in a comb are plugged up with as many queen-cells as the bee-keeper pleases (he having removed the queen), not such a number as a reason-using bee would know to be safe. The ant, however, prefers to go yards out of its way for the nearest, and casts helplessly about in interminably tangled fashion until it positively stumbles on the lost clue to its home; in point of fact, the mystery is how it has managed so long to avoid getting again on the right track. Returning to the bee, I have often observed with amazement the senseless meanderings of bees on their own alighting-boards, porches, and hives: not, bear in mind, when there has been outside interference, but in fine weather, with nothing perceptible to prevent their ordinary routine from being followed—pollen-laden workers going altogether wrong, workers getting within hive-covers and exhibiting not the slightest talent in extricating themselves from their trouble, queens and drones constantly getting wrong, and mistaking the whereabouts of the home they are said so unerringly to take note of on their first flight. Bees, when overtaken with the desire to swarm, act in very many cases in what we must call an unreasoning manner, though I am prepared to fully admit that it is natural and instinctive, and therefore not to be found fault with. Only when it is sought to endow them with the faculty of mental deduction—the power of reasoning from premises—do we strongly protest. One can allow them this kind of arithmetical exercise: that, as this or that course leads wrong or right, it may in future be followed or avoided. This is simply learning by experience, and most animals share the gift with man; the individual bee itself, however, profits little by it. There is, however, a tablet in the very core of its existence on which the result of its experience is written; there is a leaning, a tendency, to do, or avoid doing, what has turned out well or otherwise in the past, and though such tendency in its initial stages is so exceedingly slight as not, perhaps, to be obeyed by that individual in its own life, yet the leaning is inherent, and is handed on to posterity, to be added to and accentuated by them by the experience being repeated in their life-history, until its impulse becomes strong enough to be obeyed, and we behold an instinct, the operation of which many people would seek to elevate to the level of high mathematics.

Let us (always with a loving eye) contemplate the action of the honey-bee in the production of comb. We were taught, and most of us still believe, that it is of the superlative sense of the bee wax is produced; that it finds more comb necessary for its operations, and wisely decides, either individually or collectively, to remain in a resting, quiescent state, favourable to the secretion of wax. As a matter of fact, the result of my observation convinces me that the idleness preparatory to the issue of a swarm, where the combs are filled with honey and brood, are signs that wax must be secreted by the gorged older workers—they cannot possibly prevent it—and the bees running about during the agitation, immediately previous to swarming—like all bees in an excited state—fill themselves also with honey. The swarm alight, and in a wild state find in time a home (though they often do seem to behave in a most insensate manner in this matter of home-seeking), individuals proceed straight to work, nectar-getting at every alighting-stage, getting left to perish for their wisdom, and, a home being found, they return with stores of honey, but no cells are there in which to deposit it. What can they do but remain quiet until, in spite of them, also, wax appears, and they take the place of those members of the community who have succeeded in getting rid of their incubus? Of course, the instinct to semi-masticate wax must be granted them, and they proceed to deposit the soft mass by inherited experience at points where the subsequent movements of others produce depressions in the wax, paring away here and adding there, until we find what we are so familiar with—a beautiful structure which appears to us a marvel of admirably wise contrivance, with its three lozenge-shaped bases and six straight sides, generally so fitted together and built with regard to each other, as to give the bee a maximum of strength and an amplitude of space with a minimum of material; but this cannot, to my thinking, be at all credited to the wisdom, forethought, or calculation of the worker-bee, any more than the twining of plants, the holding fast by soft tendrils afterwards hardened almost like wire, the support obtained by hook-shaped thorns, the animated growth of roots in the direction of water, can be set down to the use by the plant of what in the animal we term a reasoning faculty. Nay, when I reflect a moment, the contrivances of the plant in various directions are so wonderful that the bee, by comparison, sinks into a very low rank.

(*To be continued.*)

SWARMING AND SECTION HONEY.

My excuse for writing this article out of season (if any article on bees can be out of season) is from the fact that a party in Colorado is considerably agitated over the matter, and wishes me to write an article on the subject as soon as may be. The party says they have no trouble in following the ideas I have sometimes advanced in regard to spreading the brood, which our good friend Mrs. Harrison was sure might be misleading to some, for there was no trouble in getting the hive filled with brood and bees by the time the honey harvest from alfalfa arrived by using the plan; but the trouble was, that when the hives were thus filled and the flow of honey occurred, excessive swarming was sure to result, which gave a loss in honey and often in queens, owing to the fact that the queens were not allowed to go with the swarms. Swarming, when working for section honey, cannot very well be avoided, or at least I have not been successful in avoiding it without sacrificing a large amount of the honey crop. In fact I would as soon have *excessive* swarming as to try to hinder swarming altogether; for in this hindering process, by any of the plans with which I am acquainted, where the ordinary hive is used, the bees are so thrown out of their normal condition that they will not work to the best advantage. Again, I think that a mistaken idea prevails with some in thinking that the brood chamber to the hives must be kept full of brood the whole season through. This is not the secret of a successful honey production, but it lies in having the brood chamber filled with brood before it is filled with honey. Thus doing, we get the labourers for the first harvest, and so far as my knowledge extends, when the brood chamber is thus filled at the time the honey-flow commences, there will be bees enough reared for all practical purposes after this, even though the combs may be filled, later on, two-thirds full of honey. There are two plans or ways of management which can be used successfully during the swarming season, in this locality; and if I lived in Colorado I would try them there, and then, if they did not work, I would study something else. Right here I wish to say that no one should follow any of our writers blindly, that is, without having some thoughts of their own, thoughts which will lead them out in all directions from the beaten path of a Langstroth, a Quinby, a Root, a Dadant, a Doolittle, or any other writer. Don't be a machine, but be the *master* of a machine, or of anything else you may take hold of. So when you find yourself confronted with the swarming problem, or any other, master it, if it 'takes all summer,' and do it by *your own* planning, or the modifying of some plan that you have read or heard about. In this way you will grow; and by telling us how you did it, in some of the many journals of our day, you will help some one else to grow; and thus we shall be of mutual benefit one to the other, just as the all-wise Father designed we should be. 'No man liveth to himself, and no man dieth to himself.' But, to return: When a swarm issues, and while it is out in the air or clustered, go to the hive from which it came and take out all the frames of brood and put in their places frames of empty comb, frames filled with foundation, or frames having starters on them, as is best pleasing to you, returning the surplus arrangement on the hive as it was before; and if the swarm is a large one, it is well to give additional room by way of surplus sections. Now hive the swarm back in the same hive, or let it return if the queen has her wing clipped. Set the frames of brood with the adhering bees in a hive on a new stand, and in twenty-four hours give a mature queen-cell or a queen, according to what you can supply. This should satisfy any colony; but if the swarm on the old stand persisted in swarming out in a day or two, or in a 'week's time,' as the writer says theirs often do, then I would cage the queen for from a few days to two weeks, according to circumstances, after which I would release her. This is on the plan of doubling our colonies each year. If I wished no increase, then I would put on a queen-excluder after putting in the frames below, or after putting these frames in the brood chamber where the frames of brood were taken from, and on top of this I would place the hive containing these frames of brood, while top of this last I would put the surplus arrangement that was on the hive when the swarm issued. This should do away with all further swarming, but it results in filling these combs, which now have the brood in them, with honey, which must be extracted, while it lessens our crop of section honey just that much. Now, if, instead of putting this hive of brood immediately on top of the queen-excluding honey-board, we place the sections there and then place the hive of brood on top of the sections, we shall get our honey mostly in sections, but we shall not be as sure of stopping all further swarming, for, as the bees hatch out from the brood above, they will crowd below, thus making the colony appear more populous than it did in the other case. If the sections were open-top sections, then it would not appear more crowded, for the bees would be equally distributed throughout the whole hive, but in this case we should have our section honey badly travel-stained, which is about the same as having it in the brood combs, as we did where the sections were top. To obviate this I allow the bees a passage-way only at the outside of each of the outside sections, which is done by a slot in the outside boards or sides of the case or section-holder. In this way the colony is kept together and good results secured, and should work in Colorado, it seems to me.—G. M. DOOLITTLE, *Borodino, N.Y.*—(*American B. J.*)

Thus it was, will be for ever:
If 'to be' man has in view,
Men must live with firm endeavour
Well to think, then plan, then do:—
'Try it.'

The Current.

THE CHEMISTRY OF THE HIVE.

[Applications continue to be made for the pamphlet bearing the above title, written by Mr. Otto Hehner some seven years ago, and read at the quarterly *conversazione* of the British Bee-keepers' Association on October 17th, 1883. As the pamphlet has been out of print for some little time, and copies cannot now be had, we have thought it well to reprint it, feeling sure that its valuable contents will be welcomed by readers who have become bee-keepers since the paper first appeared in the *B. J.*—EDS.]

I have to tender my apologies to the members of the Association for again, and after so short an interval, appearing before you in the character of a lecturer. After having at your meeting in the Riding School at Knightsbridge detailed the results of my investigations into the nature of honey and of wax, and described methods for detecting any adulterations of the products of the bee, nothing was further from my thoughts than any pretension of again referring to this subject. If, nevertheless, I have altered my mind, I beg you to lay the responsibility with a very active member of your council, Mr. Hooker, who has prevailed upon me not only again to take up this subject, but also to extend its scope.

The object of my discourse three months ago was solely a practical one—namely, to point out the chemical differences between honey and wax and the great variety of substances which have been known to be employed as adulterants, and to give simple directions for the detection of such substitutions. To-day, with your permission, I propose to inquire into the processes running their course in the body of the bee, by which the secretion of wax and of honey is brought about. To be able to do so in an intelligible manner, I have to divide my inquiry into three sections—namely, the nature of wax and honey, the food of the bee, and the chemical changes undergone by the food.

Even a very superficial examination of wax reveals the fact that it is not a perfectly uniform and homogeneous substance, but that it is composed of at least two dissimilar bodies. Thus, if wax be boiled with spirit, one portion—the smaller one—readily passes into solution, whilst by far the greater proportion is left practically untouched by the spirit. After the removal of the solvent by evaporation, the two portions are seen to be different in appearance and consistency, and possess different melting-points.

A good many years ago Sir Benjamin Brodie was the first to investigate the chemical nature of these substances, and he called them respectively *Cerotic acid* and *Myricine*. He also endeavoured to ascertain the relative proportions in which these two bodies occur in wax; and he states that in a sample of English wax the cerotic acid amounted to twenty-two per cent., whilst one of Ceylon wax was, according to him, free from that acid. Other investigators, on the other hand, state that no less than ninety per cent. of wax consists of cerotic acid; others give the quantity at seventy per cent., and one again at ten per cent. It would follow from these statements, supposing them to be correct, that wax was subject to extraordinary fluctuations in its composition. This, in the case of a product which is so remarkably uniform in all its physical characters as wax, appeared to me very unlikely, especially since comparatively recent investigations into the nature of other animal secretions—notably, milk and butter—have entirely exploded the older ideas about the variability of the products referred to. I thought it worth while, therefore, from an examination of a very great number of samples of pure yellow wax, to satisfy myself of the correctness, or otherwise, of the statements made. Through the kindness of a number of members of your Association and others, I was placed in possession of samples representing a number of English counties, especially Herts, Lincolnshire, Buckinghamshire, Hampshire, and Surrey, and a great variety from foreign countries—the United States, Australia, Algiers, Madagascar, Mauritius, Jamaica, and Gambia. All English and many of the foreign samples possessed the usual colour and appearance of wax; others ranged in colour from light grey to dark chocolate brown.

I will not trouble you with the processes of analysis which I adopted—I have referred to them at length at the last meeting, and I have described them in detail in the *Analyst*, February 1883, but the general results are, perhaps, sufficiently interesting to find a place here.

The percentage of cerotic acid varied from 13 to 16 per cent., most of the samples showing between 14 and 15 per cent., the average of the total being 14·4 per cent. The quantity of myricine reached from 86 to 89·6 per cent., the average being 88 per cent.

Obtained as these results are from a great number of samples and by means of methods not at the disposal of former investigators, I think I may safely take them to establish beyond a doubt that wax, instead of being an extremely variable mixture, is really remarkably constant in composition. This conclusion is of great consequence in two respects. First, it renders it quite possible, and even easy, to devise methods for the detection of adulterants—impossible if it be admitted that the pure product was never twice alike and subject to such variations as are possible between pure myricine on the one hand, and pure cerotic acid on the other. And, second, it furnishes the strongest possible proof in favour of the view which holds wax not to be merely culled by the bees from the various flowers they visit, in a ready-made condition, but that it is a product of their own vital functions. I shall have to recur to this point in detail further on.

Having thus split up wax into two proximate constituents, I must now inquire into the nature and composition of the same. When subjected to analysis, both the cerotic acid and myricine

are found to consist of the three elements by the union of which the great majority of organic products are built up, namely, carbon, hydrogen, and oxygen. And counting, with the mind's eye, the number of particles of these three elements, which make up cerotic acid, twenty-seven particles, or atoms, of carbon, fifty-four of hydrogen, and two of oxygen will be seen joined together into one firm complex of atoms. Cerotic acid, as its name implies, is a real acid, like sulphuric acid; that is to say, it is capable of combining with alkalies, such as soda or potash, and to turn the colour of certain organic colouring matters in a very decided manner.

Myricine itself can be readily broken up into two very dissimilar parts. By boiling with an alkali one part passes into solution, whilst the greater portion of it remains behind. The former has been identified with a substance composing the greater portion of the fat called palm-oil, namely, palmitic acid. It is built up of sixteen particles of carbon, thirty-two of hydrogen, and two of oxygen. The undissolved part consists of thirty atoms of carbon, sixty-two of hydrogen, and one of oxygen, and is called myricylic alcohol.

On examining the proportions of carbon, hydrogen, and oxygen, which make up the three compounds which I have named, one cannot help being struck with the fact that both in the case of cerotic and of palmitic acid the number of hydrogen particles is double as great as that of the carbon, whilst both contain two of oxygen. They are evidently constructed, so to say, on the same model. The myricylic alcohol, on the contrary, contains two more particles of hydrogen than the double number of the carbon, and only *one* of oxygen.

There exists in nature, in various products, both animal and vegetable, a considerable number of compounds similarly constructed to the substances referred to. Thus, if we were to examine the acrid secretions used, as a means of defence, by the bee, the ant, certain caterpillars, and by stinging nettles, we would find in them an acid substance, called formic acid, in which one particle of carbon is joined with two of hydrogen and two of oxygen. In the acid of vinegar, acetic acid, two of carbon, four of hydrogen, and two of oxygen are combined. In the rank product of the decomposition of butter, butyric acid, four of carbon are linked with analogous proportions of the two other elements; and so on, in the case of very many other acid compounds, formic acid being the simplest link of the chain, cerotic acid the highest, heaviest, and most complicated. The whole series is called that of the fatty acids, because two of its members, namely, palmitic acid, with sixteen particles of carbon, and stearic acid, with eighteen, and a very nearly related acid, oleic acid, make up, in combination with glycerine, the bulk of by far the majority of all fats, both animal and vegetable. I should like to point out, as not a little remarkable, that both the highest and the lowest member of the series are products of the bee.

To every acid there corresponds a compound called an alcohol, having two particles more of hydrogen, and one less of oxygen. Thus, taking vinegar or acetic acid, the corresponding alcohol, with two particles of carbon, six of hydrogen, and one of oxygen, is *the* alcohol *par excellence*, which gives the name to the whole series; whilst to formic acid corresponds methylic alcohol, the important constituent of methylated spirit, having the smallest number of carbon particles contained in any alcohol. Myricylic alcohol, again, forms the highest member of the chain. Wax contains both the most complex fatty acid, and the highest alcohol which has been found in nature.

(*To be continued.*)

Correspondence.

The Editors do not hold themselves responsible for the opinions expressed by correspondents. No notice will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITORS of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements.*)

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

COMPLETING UNFINISHED SECTIONS.

[469.] I have been a bee-keeper and a constant reader of the *B.B.J.* for some years, and have often felt the *cacoëthes scribendi* when reading some of the wild theories detailed therein. I have, however, never yet contributed anything to its pages, but upon reading the letter of J. W. Blankley (No. 450) I can be silent no longer, but take up my pen to condemn his 'theory' of getting unfinished sections completed in the strongest language possible, for if his suggestions were carried out to any extent, I feel sure they would do incalculable injury to the cause of bee-keeping. That he would get his sections completed by the means he recommends, I have not the slightest doubt, and were he to fix a Canadian feeder at back of dummy, giving the bees free access thereto, and filling it as often as required, I see no limit to the number he may get completed during an ordinary season; but I fancy he would soon have to seek fresh customers, and if he fell into the hands of some of those swindlers who have been the means of introducing the deposit system, I, for one, should not pity him.

My experience (and a little experience is worth a lot of theory) teaches me that bees, under the circumstances he describes, would carry the greater part of the syrup from brood combs into the sections and replace it with the

stores they gather from the fields, and that if we wish to secure nothing but honey of the best quality, which should be the aim of every true bee-keeper, we shall do as little feeding as possible consistent with the welfare of our little pets.

Of course, if they have not sufficient stores for winter they must be fed until they have, and in an exceptionally bad seasons, such as 1888, it may be necessary to feed during the summer to keep them from starvation; but fancy some of our customers seeing us put on a Canadian feeder, containing ten to twenty pounds of syrup, in order to get our sections completed, what would be the result? Why, we should be left 'severely alone' as far as disposing of our honey (?) was concerned, and serve us right too, say I.

Let us get all the sections filled we can, but not by dishonest practices, and let us take care to put nothing but pure honey upon the market, and the cause of bee-keeping must and will prosper.—CYMRO, *Builth, Wales.*

[We heartily agree with our correspondent in condemning as forcibly as we can anything and everything in the way of allowing bees to store sugar syrup in combs and selling the same as honey; but we think he is doing the writer of No. 450 (p. 559) some injustice in presupposing that the intention of the latter is to induce the bees to carry the syrup up into the sections. Indeed, we feel sure he would disclaim such a practice as strongly as does 'Cymro' himself. The idea is to fill up all vacant cells in the brood nest in a single night by means of the rapid feeder after temporarily removing the sections from the hive, so that all honey gathered afterwards must perforce be carried into the sections above when the latter are replaced. This is, at all events, the theory; whether it will be verified in practice remains to be seen. Personally we have already expressed our fears that the syrup will be carried into the sections above by the bees, and it remains to be seen whether they will do so or not.—EDS.]

NOTES BY THE WAY.

[470.] *Honey Candying.*—Has it been noticed by bee-keepers that honey has crystallised earlier this year than it generally does? I had a few sections getting cloudy early in October with granulation; that, of course, could not have been caused by cold weather, as we had a high rate of temperature during September and October. I have not had any honey granulated in sections before since 1884, the year of the Healtheries, though I have held some sections for private customers until late into—say April and May—the following year. My honey is always stored in the same storeroom, which is over the kitchen, with hollow walls, and of a fairly uniform temperature and very dry. I think the cause is the low temperature at or shortly following the time of gathering, as in a good, warm, dry honey season like Jubilee year, 1887, my extracted honey kept well—as bright and clear in bottles the following spring of 1888 as it was when first bottled in August or September preceding. Probably the source from which honey is gathered has a great influence on its granulation or non-granulation, perhaps more so than the state of the weather in which it is gathered; as I remember in the palmy days of British bee-keeping, when we used to meet in the metropolis at the great annual bee and honey shows, that some of the sections of honey were crystallised so early in the year as July, so that it must have been the constituent parts of the honey itself that crystallised apart from atmospheric influence or conditions.

Super-clearers.—In the matter of super-clearers Mr. Seamark holds the field as inventor at present. The Roose and Dibbern (American) escapes have only been in use two or three seasons, but here we have one similarly constructed that has been in use a decade. I cannot understand how it is that our inventive geniuses, when they have hit on a good thing, do not give our fraternity a 'useful hint' or place it in the hands of some enterprising appliance-maker, so that it can be used for the benefit of the craft.

I thank Mr. Grimshaw for his letter (462), 'Are Bees Thieves?' It strengthens one's hands in dealing with erroneous statements. I sent a long third letter to our local paper, which the Editor summarised, in which I gave several extracts from the writings of scientists on the subject of pollination and insect fertilisation of flowers and plants, closing with the assertion that a bottle of honey was simply a bottle of sunshine.

Wind-breaks.—My home apiary is exposed to south-west and westerly winds, and I find bavins standing along the outside of rails, and fixed to rails by long rods held to top and bottom rails with galvanized wire, make an excellent and durable wind-break. My present one has stood four years, but I intend to renew the bavins next spring, when the old ones will be useful for firewood.

Watering-places for Bees.—I find my bees take water with avidity from spent tea-leaves. I do not know if *thein* and *tannin* in weak decoction are beneficial to bees; but this I know, that my bees are perfectly healthy and that they simply revel in the tea-leaves in the breeding and honey season. I used some years back not to trouble to give them water, but let them visit a roadside pond about a stone's throw from the apiary for water; but one day, seeing some schoolboys put their feet down very decisively in the soft mud, I examined the mud for the reason, and found quite a large number of bees crushed into the mud. That decided the matter at once, that I must try some means to get the bees to take water at home, and about that time I was talking to an old widowed bee-keeper, and noticing the bees going to one particular spot in her garden I asked the reason why they did so, and she told me she made it a rule to 'empt' her teapot there for her bees; and there were certainly a lot of bees on the tea-leaves on the ground; so from that time I have adopted the plan of keeping up a constant

supply of water when required by the bees in some shallow dripping and other pans. A cheap iron teatray would make a good drinking-place for bees, and if a coat of brunswick black was put on every year to prevent rust it would last a lifetime. These drinking-places near the hives, especially in exposed apiaries, are, I feel sure, one of the means to an end, and that end success, because the bees in early spring—say, during the cold winds of March and April—get chilled in large numbers when fetching water long distances, sometimes by getting blown into the water, and though they may reach dry land it is in such a benumbed condition that they rarely take wing to reach home again; and we must remember that bees *are* bees just at that period, and anything that tends to reduce the population of a hive must be guarded against and prevented as far as it is in our power to do so.

Just now we are experiencing very severe frost, with snowstorms. The apiary presents a very wintry appearance: but the knowledge that all the hives have a good supply of food removes all care and uneasiness, and now that outside work is suspended for a few months we are at liberty to plan out our course for season 1891. That it may be a good one is the sincere wish of—W. Woodley, *World's End, Newbury, November 29th*, 1890.

APPLIANCE DEALERS.

[471.] Having seen in the columns of the *B.B. Journal* so many complaints made of late against dealers in requisites for bee-keeping by their badly-treated customers; and, on the other hand, so many plausible explanations and extenuations of their conduct, and almost counter-charges by the appliance dealer against his customers, it has occurred to me that, on the principle of the trite saying, 'What every one says must be true,' I should add my experience as another grain of evidence to prove the guilt of those who no doubt by many might possibly be thought to be misrepresented by a mere prejudiced few. The modern system of bee-keeping has become generally known in this part of the country within the last four or five years, which is due to Mr. John Rountree, well known in this neighbourhood as an enthusiastic bee-man, and the first to adopt the bar-frame hive and humane system of keeping bees, and has cheerfully and gratuitously done much to diffuse this knowledge among his less energetic but grateful neighbours. However, there are still many who adhere to the old straw skep, because it is easily got and managed, whereas the cost of the bar-frame hive and (to uninitiated country folk) its greater difficulty of management quite debar them from its use. I find in some cases throughout the country hardware shop-keepers do retail the modern hive, &c., with a vengeance, charging at least a third more than they ought, especially considering that the hives are often made by local carpenters, who make them anything but an exact model of a well-made hive. Under these circumstances a young man and myself joined early in the summer of this year to send for sections, foundation, &c., with the object of getting for ourselves and supplying our neighbours with these articles at market price. Accordingly, we wrote to a gentleman (?) well known in the advertisement columns of *B.J.* for his wholesale price list. This, however, we did not get; but he sent enclosed his price list corresponding with his advertisement, offering something like one shilling and sixpence in the pound off for ready cash. The result was, we at once gave an order for 1*l.* 10*s.* worth of sections and foundation, enclosing P.O. in payment, and requested immediate delivery, as our neighbours were waiting for the goods; but after delaying some days past the expected time of a reply and an acknowledgement of cash, we got word that the particular price section was 'sold out,' but he could supply a dearer and better quality if we advised. There being no time to wait, we were reluctantly obliged to wire him to 'send goods specified to amount sent:' but, sirs, in common with many others, we had the opportunity of cultivating the virtue of patience for about ten or twelve days longer before our goods came to hand. Still this was not our only trouble, for on reckoning up we found we had five shillings' worth fewer sections than even his own advertised prices entitled us to, and of the discount there was never a word. Of course we at once wrote, demanding an explanation or the balance, at the same time drawing his attention to the fact that we only expected him to deal with us according to his own advertisement of the same week's *B.J.* He replied, saying that he had written to *B.J.* to alter the advertisement, but was sorry to see it was not done, but still held on to the money. We again wrote, threatening litigation unless balance was refunded, yet got no reply, and remembering it is 'a last resource, only recourse, to a course of law,' we dropped the matter and heard no more, but saw his figures changed in the following week's advertisement. It so happened that the past summer was so exceedingly bad for honey that our delay was no very serious loss; but had it been otherwise, the case would have been far different. On account of the exorbitant price of wooden hives in this part of the country, many who have a mechanical turn of mind are now making their own hives, and with the help of *Modern Bee-keeping* and the *B.J.*, I think we have attained a fair share of proficiency in that direction. I would, therefore, advise all mechanically inclined bee-keepers to learn to make their own hives and bar-frames, buying only the foundation and sections. I admit the difficulty of making the frames for brood chamber perfectly rectangular, but with the help of a block one who could make a hive could soon manage that too. I have myself taught some young men about here how to make them for themselves. At the same time I invariably recommend their getting *The Guide, Modern Bee-Keeping* and *B.B.J.*, for

with these helps any ordinarily intelligent person would to a great extent be independent of his neighbours' assistance, which I think will be admitted is of great importance sometimes. I regret to say very little honey was got here during the past season, which, I fear, will be the quietus to many who have reckoned altogether on the profit side of bee-keeping. Bees were generally short of stores in September, and kept working away pretty well till the 26th inst., which brought seventeen degrees of frost, and consequently flowers and bees are both gone to sleep, and unless the latter get some candy or some other feeding, many, I fear, will be *non est inventus* next year.—G. J., *Ashfield Lodge, November 29th.*

BEES AND CLOVER.

[472.] The gentleman to whom Mr. Woodley refers on page 551 of *B. J.* touches us bee-keepers in a very tender place when he charges our little friends, the bees, with purloining, and ourselves, their owners, with receiving stolen goods; but as it would be rather inconvenient to arrest all the accused criminals, it might be made a matter of compromise, and if we receive from our bees a certain portion of honey from the farmers' flowers, do not we repay him by the action of our bees in fertilising his flowers? Take clover, for example: without the aid of the bee or some other insect, the nutritious properties in the hay would be lessened, and the weight much diminished, as the flower would not produce seed unless fecundated.

Farmers have found clover as well as other seed valuable, and as there is a proper time for all things, especially in the cutting of hay, which should be performed when it has gained sufficient solidity, and contains the right proportions of sugar, starch, and gum, which give it the flavour and aroma so much appreciated in trussed hay. In view of these things, I trust the farmer will forgive the bees their trespass. —R. B., *Histon.*

EBOR BEE-KEEPERS' ASSOCIATION.

The second annual honey fair and exhibition of honey for prizes of the Ebor Bee-keepers' Association was held in conjunction with the annual chrysanthemum show and floral *fête* of the Ancient Society of York Florists in the Art Exhibition building, York, on Nov. 19th, 20th, and 21st. Owing to the unpropitious season for honey-gathering in the district, the exhibits were not so many in number or so good in quality as those of last year, yet, notwithstanding this, the show of honey was very creditable to the exhibitors, and the honey stall formed a very attractive feature of the occasion. A considerable quantity of the honey staged was disposed of at prices favourable to the producers. The honey fair was, as last year, under the management of the Association's consulting secretary, Mr. A. C. Jemeison, 26 Colliergate, York, who, to add to the interest of the honey fair, contributed a choice collection of bee-appliances.

The prize list was as follows:—

Class I. For the best six one-pound glass jars or bottles of Run or Extracted Honey.—1, Mr. W. Richardson, Copmanthorpe; 2, Mr. J. Poulter, Wheldrake; 3, Mrs. Kirk, Stillington; H.C., Mr. W. D. Hodgson, Dringhouses.

Class II. For the best three one-pound glass jars or bottles of Run or Extracted Honey.—1, Mr. W. Richardson, Copmanthorpe; 2, Mrs. Kirk, Stillington: 3, Mr. J. Poulter, Wheldrake.

Class III. For the best six one-pound Sections of Comb Honey.—1, Mrs. Kirk, Stillington; 2, Mr. J. Cattley, Riccall; 3, Mr. W. Richardson, Copmanthorpe.

Class IV. For the best three one-pound Sections of Comb Honey.—1, Mrs. Kirk, Stillington; 2, Mr. J. Cattley, Riccall; 3, Mrs. Palmer, Naburn; H.C., Mr. W. Richardson, Copmanthorpe.

Class V. For the best six one-pound glass jars or bottles of Run or Extracted Heather Honey.—1, not awarded; 2, Mr. Duncalf, Yearsley, Brandsby; 3, Mr. A. Rowntree, Old Malton.

Queries and Replies.

[279.] *Mead.*—I wish you would give me another recipe for making mead. My honey is so dark this year I must use some of it in this way, and the recipe I tried was rather a failure, so I want to try again.—A Puzzled Bee-keeper.

Reply.—We have given many recipes for mead-making, and correspondents have tried them with varying success and failure. Here are two which appeared in our columns some years ago—reprinted from a great-grandmother's recipe-book a century and a half ago—perhaps they may give results more to your taste.

'Mead.—*To Make Strong Mead.*—Take a quart of honey to three quarts of water, and lett them boyle an houre. In the meantime, when it's begun to boyle, take ye white of an egg and beat it very well with a pint more of water, and put it in: then scum it very well; this will help to make it clear; then if it be not very clear, put it through a clean flannin into a clean cask and clay it up very close, letting it stand half a year. Then bottle it, and let it stand half a year before you use it. (The claying-up was the plastering of stiff clay round the bung, to ensure the perfect exclusion of air.) *To Make Small Mead.*—To eight gallons of water, put one gallon of honey, 3 lbs. of loaf shuggar. Boyle and clear with whites of eggs. Keep it scumed for an houre, till it clears; then put in it mace, cloves, cinnemon, and ginger. If you think fit, let it boil an houre longer. Take it off ye fire and infuse with ye juce of six lemmons; when it is cooled, clear it from ye sedments into a barrel, with six or eight spoonfuls of new ale yeast, and a good handful of

barm and sweet bryer. When it has done working, close it up in ye barrel, and after it has stood so a fortnight, bottle it up, with a bit of loaf shuggar in every bottle.' Good mead is no despicable liquor. The bee-keeper may make it at no appreciable cost by soaking the combs in cold water after the honey has been drained out; by thus washing the combs, sufficient honey is obtained for the purpose. The liquor when boiled, and a bag of spices in it, a little lemon juice and rind, and then cleared and worked, as in the above old recipes, makes excellent mead.

Echoes from the Hives.

Honey Cott, Weston, Leamington, Nov. 28th, 1890.—Last week the weather was so mild the bees were flying freely every day, so much so that I took advantage of it and moved several stocks into fresh hives. I also lifted several stocks of driven bees into better hives, although if the weather had been cold I should have let them remain where they were all winter. I have only one lot left now in a half-inch wood hive, and as we are having this week a lot of snow and frost, they will have to remain, although I am satisfied they are well provided with food, and covered up warm. I am still finding some more old hives to 'standard.' Sunday last, Nov. 23rd, the thermometer stood at 60° in the shade; a day or two after it was down below freezing-point. We seem to be well in for wintry weather now. Look out for the tom-tits! they have paid me a visit; I have already caught one, and have set some little steel traps for them, and shall probably have some more by-and-by.—JOHN WALTON.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

JOHN WALTON.—Yours is in type, and will appear next week.

HENRY L. ATTRIDGE (South Africa).—Your pamphlet is to hand. We hope to notice it next week.

JOHN RAMAGE.—Read carefully the rules of the deposit system on opposite page, and you will find that every element of risk is avoided. We are glad to say it has been taken advantage of much more readily than we anticipated at the outset, and every transaction, so far, has been satisfactorily concluded.

*** *Several letters, queries, &c., held over.*

WHAT I DON'T KNOW ABOUT BEE-KEEPING.

I don't know why the secretary should single me out to make an open display of my ignorance about bee-keeping—unless it be from natural spitefulness on his part.

I don't know that I can tell you all that I don't know. It would take all the time of the Convention. I'll just mention a few points.

I don't know how far apart bees naturally space their combs. The only chance I have lately had to measure gave eight spaces in eleven inches, right through the brood nest, the spaces varying from $1\frac{1}{4}$ inches to $1\frac{1}{2}$ inches. As the combs approach the outer edges they spread farther apart, reaching in one case $1\frac{3}{4}$ inches. One man, in whom I have confidence, says $1\frac{1}{4}$ is the average, while another says $1\frac{3}{8}$. I don't know.

I don't know whether the greater loss in wintering outdoors, in a climate like mine, may not be made up by greater vigour as compared with those wintered in a cellar.

I don't know whether successive poor years are to be considered a permanent thing, or whether we may again expect crops as of old.

I don't know why prices this year don't rise to correspond with scarcity.

I don't know whether it will be a good thing to hold our annual meetings anywhere, or at any time, when we cannot get reduced rates, as the result of some other undertaking at the same time.

I don't know that there is need of any more bee periodicals.

I don't know whether it is best to replace queens of a certain age, or leave it all to the bees.

I don't how a bee-keeper, with plenty of bees to stock his field, can prevent some one else from planting an apiary right beside him—thus spoiling the field for both.

I don't know, for certain, how to prevent brace-combs.

I don't know of anything that will pay to plant for honey alone.

I don't know whether new developments may not oblige me to go back to the antiquated and long-ago-condemned plan of using fixed frames.

I don't know—and I don't know who does know—how to prevent swarming. I don't know what causes swarming—don't know near as much about it as I did years ago; and if I did know all about the cause, I don't know that I could prevent it.

I don't know that we'll ever get anything settled in bee-keeping—settled to stay, so we'll not have to change our fixtures or plans.

I don't know near as much as what I don't know.

I don't know—I don't know, but I'll stop.—DR. C. C. MILLER, *in American Bee Journal.*

THE

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Editorial, Notices, &c.

USEFUL HINTS.

Weather.—Since our last 'Hints' were written we have had a week of weather the like of which has not been experienced in this country for very many years; but having referred at some length to the subject last week, we need not further dwell on it, except to say the frost was not destined to trouble us long, or test very severely our wintering arrangements. Whether we shall experience a recurrence of 'twenty-seven degrees of frost,' time will show, but though the snow and frost have nearly gone, no indications are visible of the opportunity for a bee-flight, and hives are likely to remain a 'closed book' for some time to come.

Buying Bees.—The experience of a correspondent, as it appears in this issue, gives the opportunity for once more drawing attention to the risk of buying bees without knowing whether they are free from disease or not. We cannot too strongly impress on bee-keepers, especially beginners, the inadvisability of purchasing bees without a chance being afforded of inspecting their condition; and if so many as half-a-dozen colonies are being bought when the weather is too cold for opening the hives and removing the frames, it would pay well to engage the service of a competent expert to pass an opinion on the healthiness or otherwise of the bees before completing the purchase. If this is impracticable, and the bees must be dealt with when no breeding is going on, we should wait for a day warm enough for the bees to fly; when, if on the removal of the quilts, six or seven seams of bees are seen, it is a good first sign of healthiness, and on raising the combs one by one, if no sealed cells are visible, it may be taken as good evidence of there being no foul brood in the hive, and that the bees are healthy. Nevertheless, it is at all times a risky thing for an inexperienced bee-keeper to buy bees in winter.

We always advocate beginning with a swarm in May or early in June, and for buying stocks the best time is about the middle of April. At that time it may be seen with certainty if a colony is flourishing by the energy and business-like air with which the bees go about their work, and by the numbers passing in and out of the hive. Beyond this it only remains to examine the condition of the combs to arrive at a proper estimate of what constitutes a strong, healthy, well-combed stock of bees, and to value it accordingly.

Dryness of Hives in Winter.—Whatever difference may exist among bee-keepers as to the best method of ventilating hives in winter, there is no divergence of opinion regarding the necessity for preserving to the bees as dry a temperature as is possible during the long confinement of the cold winter months. Whether it is proved the best practice to accomplish this by what is known as bottom ventilation, *i.e.*, by one of the two plans usually followed—(*a*) allowing a very wide entrance to the hive, or (*b*) by the other expedient of raising the hive, bees, combs and all, a few inches above the floor-board; or the second plan of using means to secure an insensible upward ventilation by covering the tops of frames with porous coverings, we need not pause to inquire; but one or other of the plans *must* be put in practice, and when either is found to answer the purpose well, we say leave well alone and continue to follow it out.

A dry hive is a great *desideratum* for the health of the bees, and when we say that that *desideratum* may be secured with close,

non-porous coverings and free bottom ventilation, by allowing space below combs, we are ready to admit that plenty of warm coverings on top of frames and a good wide entrance below will, in many hands, secure the same end. We also strongly advise the raising of all hives ten or twelve inches above ground in any but the very driest situations. There must be an amount of mischief arising from a hive standing close to the damp ground for several months, and as we cannot tolerate the practice of altogether discarding legs or stands of any kind, we recommend readers to follow our own plan, and have the hives legless, for convenience in other ways, but set up on a loose stand, which keeps the floor-board raised and allows the drying air to pass freely under and around it. The supposed disadvantage of bees being blown to the ground does not exist, as a large alighting-board reaching to the ground prevents this.

CONFERENCE OF BEE-KEEPERS IN AUSTRALIA.

[It will interest bee-keepers here to know that bee-keeping is being recognised by the legislature in Australia as well as in Canada, and we print below an extract from a recent issue of the *Town and Country Journal*, of Sydney, which explains itself.—Eds.]

A conference of bee-keepers was held in the office of the Hon. Sydney Smith, the Minister for Mines and Agriculture, Sydney. The Minister presided, the Director of Agriculture, Mr. Anderson, also taking an active part in the conference, the expressed object of which was the improvement of the bee industry of this colony. About a dozen apiarists had been invited by the Minister to meet him for the above object, and were present.

The extent and profit of bee-farming is known to a comparative few, and its importance is consequently overlooked. In France the industry is more general than in England, and some few years ago the number of cultivated swarms in the former country was set down at 2,500,000, and owners of 400 to 500 colonies were not rare, the production of honey and wax being valued at 22,000,000 or 23,000,000 francs annually. Other European states give great attention to it, raising not only abundance for home consumption, but exporting considerable quantities. Germany goes so far as to compel all schoolmasters to pass an examination in apiculture, besides fostering the industry in many other ways. Bee-keeping on a large scale has not been cultivated in England, but apiaries are spread over the country, and greater attention has been paid to it during the past few years; even working men being now found, here and there, whose yearly profits from this source amount to 25*l.* or 30*l.* But in America the industry has, like many others, assumed gigantic proportions, with corresponding returns. As evidencing this, it is only necessary to state that the yearly production of honey in the United States is valued at 4,000,000*l.* and the beeswax at 200,000*l.* In America one stock has given as much as 600 lbs. of honey in one season, but 200 lbs. or 300 lbs. is quite common. Beyond the first cost the expenses are but trifling in ordinary cases; but, of course, where it constitutes the sole industry the outlay will be proportionate, and skilled labour demanded. It may, however, be said without fear of contradiction, that no description of stock-keeping is such a financial success as bee-keeping. It has been resorted to by a few in these colonies, but, with the advantages we possess, the fact that so much honey has to be imported, and that a considerable quantity of a clever imitation is manufactured in this city, does not speak well for us as a people. Unfortunately, too, what has been a promising industry is threatened by a serious calamity in the form of a disease, known among bee-keepers as 'foul brood.' Many cases have been reported recently to the Minister for Agriculture, which show that this bacterial disease has more than decimised large apiaries during the past few months. In South Australia and New Zealand so virulent has the disease become that it has been found necessary to pass an Act of Parliament authorising the destruction of stock where it exists. Foul brood is the bee-keeper's bane, and no good will come of dealing with it in a trifling way—it must be stamped out. This being the deliberate opinion of experts in England and America, the Department of Agriculture has, we understand, been urged to take action in this matter. In order to ascertain as fully as possible the extent to which the disease prevails, and the experience and views of the bee-farmers of the colony on this and other matters connected with this industry, the Minister for Agriculture has invited a number of these gentlemen to meet him in conference.

The programme of the conference, as issued by the Department, included (1) How to improve the present state of the bee industry and to open up markets for its products; peculiar value of Australian honey; and adulterations of honey. (2) How pests and diseases (especially foul brood) which affect bees may be prevented or treated. (3) The indirect value of bees as fertilising agents, &c. (4) The rearing and management of bees, and the species found to be most suitable to our colonial and local conditions. And (5) plants to be cultivated for bee-food.

In opening the proceedings the Minister thanked the gentlemen present for responding to his invitation to attend and give the Department information respecting the bee industry in this colony, especially in relation to the existence and extent of the disease above-mentioned, and the necessity or desirability of legislation

as in other countries. He regretted that the state of affairs would prevent him remaining long, but an opportunity would be given for the reading of the papers prepared by several gentlemen present, and a conversation on the important points which might be brought before them. It was also suggested that those present might desire to meet alone in the afternoon to consider the desirability of forming themselves into an association such as exists elsewhere.

There were several very good papers, and without specially referring to each paper, we note the following matters as emphasised therein, or brought out in the discussion which followed.

1. The superior quality and flavour of pure Australian honey, the rich provision of bee-food by nature in this land, and the comparative neglect of bee-keeping as an industry of great commercial importance, as not only supplying an important article of diet for local consumption and exportation to less favoured countries of the world.

2. The large importation of American honey, much of which, though of excellent quality, ought not to be necessary for Australia; but more to be deprecated than even this is the fact that large quantities of an article labelled 'honey' are manufactnred here, in which there is not a fractional part of real honey—in some cases none at all.

3. The existence and ravages of foul brood in some parts of this colony, though not in all, was admitted; and the methods of treatment by phenol, salicylic acid, and sulphur were explained and discussed.

4. The desirability of giving extended information: in schools by teachers: by illustrated lectures by experts to farmers and others; and at local agricultural shows, by the practical manipulation of bees, and of improved appliances by competent apiarists, must also be mentioned. The action of the Technical College in the past was approvingly referred to, and also the present action of the Minister for Agriculture.

5. The necessity of legislation was insisted on for the purpose of dealing with adulterated honey and spurious compounds, and also for the extermination of preventable disease, as before intimated. With reference to the latter, a recommendation was made 'that bees be declared "stock;" and that those hives found to be diseased be either destroyed or cure attempted as may be thought expedient by a Government expert.'

THE CHEMISTRY OF THE HIVE.

(*Continued from page* 580.)

The physical properties of the series of substances vary, step by step, with their complexity. Those which contain low numbers of carbon particles are volatile fluids; the medium ones are oily substances; the most advanced members are solid, and with each carbon particle they become harder and less fusible, until the culminating point is reached in the case of cerotic acid and of myricylic alcohol. The natural consequence is that beeswax has an extremely high melting point, a circumstance of great importance in view of the functions it has to fulfil. In a hive, where thousands or tens of thousands of insects congregate, where the chemical changes constituting life take place on a large scale, where a comparatively enormous amount of organic food-matter is used up, heat must be evolved to a very considerable degree. I believe I am correct in stating that the temperature of the hive is very much above that of the surrounding air. At that temperature wax is solid, yet pliable. Any compound having a lower proportion of carbon, and consequently a lower melting point than cerotic acid or of myricine, would be but ill adapted for the construction of a comb. Chemical changes, and especially those constituting animal life, invariably involve changes of temperature. These may be immeasurably small in the case of individual insects, but multiplied a thousand-fold they become very evident. Even in vegetable life such changes can often be observed; for example, rapidly growing flowers are often many degrees warmer than the outer air.

Wax, then, is a compound made up entirely of fatty acids and their near relation, fatty alcohol. In this sense wax is undoubtedly a fat, but, unlike all other fats, it only deals with the highest links of the chain. Its nearest cousin from the animal kingdom is spermaceti and the fat from certain deposits in fattened geese. In this we find palmitic acid in combination with the alcohol corresponding to it, called cetylic alcohol, made up of sixteen carbon particles, thirty-four of hydrogen, and one of oxygen.

But neither wax nor spermaceti are generally in chemical language classed as fats, the use of that term being restricted to compounds of the fatty acids with glycerine, this substance also belonging to the class of alcohols. In ordinary fats, such as tallow, lard, &c., only palmitic, stearic, and oleic acids are present, together with glycerine, the proportions of the three acids varying; fluid fats, or oils containing chiefly oleic acid; solid, hard fats, palmitic and stearic acid. But in their general behaviour these fats are precisely like wax, for by boiling with an alkali they split up into an alcohol, and into one or more fatty acids, which combine with the alkali, forming a soap.

There are but two important animal fats which contain lower members of the fatty acid series than palmitic and stearic, these being butter and cod-liver oil. In both butyric acid and other acids containing but a small amount of carbon particles, occur in considerable amounts.

Only one animal fat contains any free or uncombined fatty acid, and this again is beeswax, with its fourteen per cent. of free cerotic acid.

Whichever way, therefore, we look at wax, it presents remarkable features and characteristics which have hardly, so far, received the attention which they deserve. But, after all,

in practical respects, wax is but the less important product of the bee, and I must hasten to the consideration of the nature of honey.

Essentially, honey consists of water and of sugar. Of the water I need say but little, except that I have found it to vary in quantity from twelve to twenty-three per cent., the normal proportion being from eighteen to twenty-one per cent. When the percentage falls below eighteen, the honey is generally very hard and solid; when it is higher than twenty-one it is frequently quite, or almost, clear. As I shall have occasion to explain presently, the clearness and transparency of any given sample of honey does not depend, however, upon the quantity of water alone.

Normal honey almost invariably gradually divides into two portions, a crystalline, solid one, and a syrupy one devoid of the power of crystallising, and rather sweeter than the solid portion. Chemically these two dissimilar fractions are identical in composition, both containing particles of carbon, hydrogen, and oxygen, in the proportion of six to twelve to six. They are also identical in most of their chemical reactions, such as their behaviour to alkalies, or to solutions to copper and silver, but physically they possess very widely different properties. The crystalline portion twists a ray of polarised light from its ordinary straight path towards the right side, and is on that account called *dextrose:* the non-crystalline portion turns the polarised ray to the left, and has received the name of *levulose.* Of about equal quantities of these two kinds of sugar the great bulk of honey is composed. The occurrence in honey of ordinary sugar, cane sugar, has also often been alleged, but I have fully satisfied myself that there is no foundation for such a statement. The proof is comparatively simple. If dextrose or levulose be heated with an alkaline solution of copper sulphate, a red precipitate of suboxide of copper is thrown down: cane sugar does not act in this manner. But by treatment with acids, cane sugar readily changes; it is transformed into a mixture of equal quantities of dextrose and levulose, precisely as they naturally compose honey. Did honey therefore include cane sugar as one of its normal constituents it should be expected that after treatment with acid the same weight of honey should be capable of throwing down a larger proportion of the red suboxide of copper than before such addition of acid. This, however, is not the case. It is, however, not improbable, for reasons the exposition of which would carry me rather beside my subject, that there do occur small quantities of another saccharine matter. But for my present purpose it suffices to state, and is quite near enough to the truth, that the great bulk of honey consists of a mixture of almost equal parts of dextrose and levulose, or of invert-sugar, as such a mixture is called. Whenever it happens, however, that the comb begins to become crystalline before the honey is drawn, some of the crystals remain with the wax, and the non-crystallisable sugar, levulose, predominates. Such honey, from which the dextrose is partially separated, may remain quite clear for a very long time, although the proportion of water may be comparatively low.

On examining the composition of these two sugars it is seen that they are built up of carbon, with twice as much hydrogen as there is oxygen. This is precisely the proportion in which these two elements are united in water, and from this circumstance the substances referred to are called *Carbohydrates.* Like the class of fatty matters that of carbohydrates is a very comprehensive one. It includes, apart from a great many saccharine substances, with the very names of which I need not now trouble you, and besides the two sugars found in honey, cane sugar, milk sugar, starch, and dextrin. They all act upon polarised light, turning it more or less to the right. When treated with acids, they undergo a remarkable change, they all are transformed more or less completely into dextrose, with the exception of cane sugar, which, as I have already pointed out, yields both dextrose and levulose.

(To be continued.)

Foreign.

REVIEW OF GERMAN BEE JOURNALS.

By J. Dennler (Engheim).

1. *Die Bienenpflege* (Wurtemberg). Twelfth year. Editor, Baelz, Ilshofen.—No. 10 contains a report of M. Baelz to the Strasburg Congress on 'Our Work and our Duty.' The learned writer first refers to the different apicultural works, the difficulties encountered by the bee-keeper, not only from neighbours, but also from the local authorities and others, the competition which various substances having the designation of honey* make with our flower honey, &c., and lastly, he proposes to submit to the government an Act which would have the effect of protecting apiculture, and more especially the products of bees. In the same number is published a concise report of the congress of German and Austrian bee-keepers at Gratz, in Austria, which states that the exhibition was a poor one, and that lectures were given by MM. Vogel, Ambrozie, Bendu, Spiess, Kultenegger, Glock, and Mayer. Dr. von Beck, of Vienna, was elected Vice-President. The next congress, in 1891, will take place in Lubeck, and in 1892 at Budapest. The bee-season has been a very poor one in Wurtemburg. It may be summed up in these words: 'Large swarms, and little, or hardly any, honey.'

2. *Die Biene und ihre Jucht* (Grand Duchy of Baden). Kern, editor, Eggenstein. No. 11.—The annual general meeting of the Society was held this year at Huslach, in the beautiful valley of the Kinzig, and was a complete success. Amongst the subjects discussed should be men-

* For instance, glucose and other analogous adulterants.—Eds.

tioned that referring to heating hives in winter and spring, a system originated, and so warmly advocated, by Pastor Weygandt, of Hesse. To pay proper attention to the bees, and to guard against losses, was the opinion of all the speakers. The president, who had tried the heating system last winter, said that brood-rearing is commenced too soon, and young bees not able to get out die. The stove called 'Carbon-Natron-Ofen' does not answer the purpose properly, and the American slow-combustion stoves give off too much heat. Husser, who had also tried this system, says the queens become exhausted too soon, and that the consumption of food is no less than without the heating. In adopting the heating system the bee-keeper becomes the slave of his bees. MM. Weiss and Schöflin-Laüger also spoke against heating. M. Weiss, of Karlsruhe, said that the essential requisites for good wintering were a strong population, a young queen, wholesome food, and a good hive.

3. *Nördlinger Bienenzeitung.* Editor, Vogel. 46th year, No. 16.—V. Wüst II. in a lengthy report recommends willows as bee-plants, which supply a good deal of honey and pollen in the spring. The writer gives a list of thirty-five different species of willows.

4. *Die Biene* (Unterfranken). Editor, T. Hergenröther, Röllbach. 34th year, No. 10.—The president, C. Rügemer, having died, the editor, M. Hergenröther, has been elected president of the Society.

5. *Schlesische Bienenzeitung* (Prussia). Editor, G. Seeliger, Rathan No. 10.—Ad. Theise recommends *Trifolium incarnatum* as an excellent bee-plant. This clover attains to three feet in height, or even more, and yields a good nutritious and abundant forage for cattle. It is sown in April, and it is harvested in July and August. It may also be sown in summer and cut in the autumn, or sown in autumn and cut in spring.

6. *Der Schlissche Truker* (Austria). Editor, Benda. 15th year, No. 9.—The editor recommends the swarm-catcher, which has been improved by Junginger. An extract from the weekly medical journal of Prague recommends stings of bees as an excellent remedy for rheumatism. An Austrian bee-keeper has just invented an artificial comb made of tin, having cells the natural size.

7. *Münchener Bienenzeitung.* Editor, Dr. Strantner. 12th year, No. 19.—The Munich Exposition, called 'Octoberfest-Anstellung,' which takes place every year in the month of October, was this year very fine. Bee-keeping was also well represented.

8. *Blätter für Bienenzucht* (Hungary). Editors, K. Kühm and Ivan Binder. No. 10.—The general assembly of Hungarian bee-keepers took place on the 26th October, in the New Town Hall at Budapest, presided over by M. Koldman von Gergelyi. Kühm publishes a continuation of the 'Bee-keeper's Workshop,' illustrated with engravings in the text. In the same number are found articles from the pens of Lehzen and Kanitz.

AMERICAN HORTICULTURISTS ON BEES AND FRUIT-GROWING.

Mr. James A. Budlong, of Cranston, has grown cucumbers as a speciality for forty years, and is of the firm of James A. Budlong & Son, the largest market gardeners in the State, if not in New England, especially as growers of cucumbers and pickle stock. He says he would as soon try to raise a crop of cucumbers without water and manure as without bees in a closed greenhouse. Without them there would be no crop, they all run to vines, and the blossoms and small cucumbers drop off. With open windows he would expect part of a crop. He always places hives of bees in the greenhouses when the vines blossom. Furthermore, he says, for outdoor crops, such as cucumbers, squashes, pumpkins, &c., he considers bees necessary, though the wind does some of the work. A large apiary near by would not be unwelcome.

The greenhouse and garden products of Dexter Asylum, Providence, are probably next in extent to that of the Budlong Farm. Mr. F. B. Emmons, the one in charge of this work, says he would get no cucumbers in greenhouses without bees. He thinks they are also of use in raising early melons. He has noticed that melons under hotbeds drop off until glass is removed or raised, also that squashes yield better since bees have been plenty about there. In his opinion they do not hurt fruit that is good for anything, though at times they work on pears, peaches, &c., that are soft. He believes wasps cut the fruit. He has noticed after very hard winters that there is hardly a bumble-bee to be seen, though several years later they will be plenty. Thinks if bees were more plenty through the State the farmers would be the gainers. On a stand built in a small walled-in garden patch were several hives of bees that had been of service in the greenhouse early in the spring.

Isaac Hazard & Son, South Street, Providence, raises cucumbers under glass to quite an extent, and inform us that they find it necessary to have a hive of bees where they can visit blossoms in order to get a paying crop.

Mr. N. D. Pearce, of Norwood, is probably the largest grower of peaches in the State. He marketed 500 baskets of peaches the past season, and would have sold 2000 if the wet season had not spoiled most of the crop. He does not consider bees his enemies, though they often work on peaches unfit for market. As to their importance in fertilising the peach bloom, or ensuring a crop, he could not give any decided opinion from observation.

Mr. F. H. Perry, the Providence preserver of fruits in glass, and who also grows and exhibits grapes, said his grapes at one time were cracked and covered with bees which were sucking the juice, and he gave them the blame, but having seen it in print that honey-bees do not cut or injure sound fruit he noticed more particularly, and found a yellow striped insect, two-thirds the size of the honey-bee, which might be the

party doing the work, though bees were the most numerous. Something punctured the grapes.

Robert Cushman, of Pawtucket, a prominent grower and exhibitor of different varieties of fruit, and especially grapes and pears, says he knows honey-bees work on cracked grapes and over-ripe peaches and pears, but says, 'whether they ever break the sound skin of pears, peaches, or grapes, I have no knowledge.'

The Lewis Dexter Farm, near Lime Rock, has produced for many years, if it does not now produce, the greatest quantity and variety of pears for market of any firm in the State, and it is a significant fact that in Mr. Dexter's day, and also while Mr. Plew (formerly Mr. Dexter's gardener) owned it, half a dozen or more hives were a part of the live stock of the place.—*Am. B. J.*

Correspondence.

The Editors do not hold themselves responsible for the opinions expressed by correspondents. No notice will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITORS of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements*).

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

A FEW THOUGHTS ON VARIOUS SUBJECTS.

[473.] I was amused at friend Blankley's bit about stings (438) where he says—'It is enough to make nervous and timid people give up in fear and trembling. Reader, please, don't! but clear out the hybrids and the foreigners and get some pure, gentle, native bees.' His bees are so gentle that he has only once received a wilful sting this present season, and he also thinks that the stinger did not belong to him. This is the bit that seems so incongruous: if his bees are so gentle, why in the world does he wear a veil? Certainly he has not much faith in their gentleness. I paid a visit to friend Wm. Woodley in the latter part of July, when I went to Winchester show (I have often wondered we never had a report of it in the *Journal*). In conversation we talked about taking off sections in cold, dull weather, &c.: it came out that his bees did sometimes 'pay him out.' So I said, 'Why, do *your* bees sting, then?'—at which we both had a good laugh. Well, I have handled many kinds of bees at various times—other people's as well as my own, foreign bees, hybrids, and many stocks of pure English bees—but they will all sting—aye, and well, too, at times; in fact, I think we should never get a good strain of workers if they were so harmless.

In another letter (No. 450) on 'Completing Sections' Mr. Blankley talks about rapidly feeding up a stock after taking off the sections. Well, suppose he takes off the sections (partly filled, of course), he has to get the bees out or off them: then he claps on a large rapid feeder, full of syrup, and the bees take its contents down in a night or so; he then replaces the sections on the hive again. Now, my idea is that a lot of the syrup will be carried up from below into these sections, and if so, what is the good of being at the trouble to take them off and put them on again, &c.? Besides, what would folks say who knew what he had done? I cannot think 'X-Tractor' was in downright real earnest when he wrote what he did about it. Why not follow the plan recommended by our American friends a few years ago, viz., take out a lot of the combs and and put in dummies? Then, if any surplus honey comes in, up it goes into the sections. I have done this myself years ago, but found the game was not worth the candle. No doubt friend Abbott well remembers what a hubbub was made when he advised that in a bad season the plan of feeding bees in the open with a bottle should be adapted—I believe he called it 'Bees out for a Picnic.' All manner of unpleasant things were said about it.

I had this season a great number of partly filled sections, but I should not like to get them filled in this way.

And now may I be allowed to say a word about extractors? I do not manufacture or trade in these now; but I have made and sold about eighty machines in my time, many of them with wheel on side and a strap, which passed on to the top and round a grooved wheel. Some I have made with 'Novice's' gearing, others with indiarubber bands round both the small and driving wheels; others, again, with small and large open cogwheel. The rubber wheels did not wear very well, nor yet 'Novice's,' while the open cogwheels had a way of catching people's fingers in anything but pleasant fashion. I use myself one with a wheel on the side and a strap, my first pattern. It is very quiet. I set it on the top of an old, flat, wood-topped Pettigrew skep, which latter is weighted with bricks; then to keep it quite steady I strut it firm on the top, with an upright piece of wood that goes up to an horizontal beam of wood. The upright piece is sprung in tight, and keeps the extractor immovable, while it is not in the way when inserting combs into the extractor. It can also be taken down in a moment when the machine wants emptying. Another reason why I like the wheel-and-strap motion is that when I want to stop the machine it is only necesary to press one's hand on top of the small wheel, and it can be stopped instantly. I should not like to dispense with gearing myself, and I have done a good bit of extracting in my time. In conclusion, may I ask shall we ever again get a few jottings from 'Amateur Expert,' as I know he is still about? A little more of *Mel sapit omnia* would do us good. I should also

be glad to see an occasional bit from our very old friend, Mr. C. N. Abbott. Even if he does chide us a bit at times, you know among so large a family of bee-keepers some children are sure to go astray and be wilful.—JOHN WALTON, *Honey Cott, Weston, Leamington, November 29th*, 1890.

THE FROST.

[474.] I was glad to read the observations on last week's weather. My residence stands three hundred feet above water level, about one mile from the shore, and surrounded by an open district. The temperature on the morning of the 27th November was twenty-two degrees, and ice about two inches.—J. L., *New Hedges, Tenby.*

THIN SINGLE-WALLED HIVES.

[475.] I have been rather amused by remarks in your leading article last week as to the severe weather and its probable effect on bees in single-walled hives. No; I do not feel the least 'twinge of uneasiness' as to the safety of my bees in half-inch wood hives, and I certainly do not grant that it is a pet *theory* to keep them in such hives.

I have just as much right to conclude that those who are against single walls have either never tried them or, what is more probable, have got a weakly lot of bees, liable to foul brood, dysentery, &c., through introducing foreign races into their apiary.

I kept bees years age near the Yorkshire moors in the severest winters in half-inch hives without the loss of a single stock. One winter I was able to skate up the river from York to Ripon—about thirty miles—which has never, to my knowledge, been done before or since, and yet the bees were all right in the spring.—ARTHUR J. H. WOOD, *Bellwood, Ripon, December 5th.*

[Having fulfilled what we conceive to be our duty in offering a timely word of warning to those of our readers who unfortunately have not yet acquired the knack of keeping their bees so strong as to resist any amount of long-continued frost, we will gladly leave the discussion of the question whether single-walled hives of thin wood are sufficient protection to bees in winter and summer to those who pin their faith to one theory or the other. Our esteemed correspondent will, no doubt, admit that the advocates of double-walled, cork-packed hives are as numerous as their arguments are lengthy, even if not conclusive to some of us. And we claim some degree of merit personally—even from Mr. Wood's standpoint—for having long years ago given up the idea that these extreme precautions for the protection of bees were really necessary. The hive we use is probably even thinner and lighter than that of our correspondent; but, for reasons too numerous to recapitulate here, we must have it protected from extreme *heat* as well as cold by a thin outer case. In a word, we avoid the extremes of both methods of protecting bees, and claim that ours is the safest and wisest plan for general adoption. But beyond this we are quite certain that it would only require that our correspondent should hold the position of Editor of the *B.J.* for one week to convince him of the folly of advocating single-walled hives of half-inch timber, and no other protection in summer and winter for general use by the great bulk of bee-keepers who read these pages. —EDS.]

CARNIOLANS.

[476.] I have given these bees a fair trial now, and have come to the conclusion that they are no good for honey-producing, and that it is of no use to keep them unless it is required to work up an apiary quickly, for which purpose they would be very valuable. Their rate of increase with me this year has been, I might almost say, alarming, as I have been at my wits' ends to know what to do with the swarms. I will give a few examples. Hive No. 1, headed by home-reared Carniolan queen of 1889, swarmed June 10th. Divided old stock into two nuclei, and hived swarm on old stand. July 28th, maiden swarm issued. Hive No. 3, headed by home-reared Carniolan queen of 1889, swarmed May 25th. Divided old stock into several nuclei, and hived swarm on old stand July 17th. Threw maiden swarm, and on July 27th a cast. Hive No. 6: home-reared Carniolan queen of 1889, swarmed May 21st, divided old stock into four nuclei. Put swarm on old stand; June 23rd a four-pound maiden swarm issued, and on July 2nd, a cast. Of course, I have had scarcely any honey from my Carniolan stocks, but the blacks and hybrid Ligurians have not swarmed, and have averaged about fifty pounds per hive, which is good considering the poor season.—WOODFORD.

NOTES BY THE WAY.

[477.] I am very glad to see that the initiative has been taken by our Editors to secure as far as possible the interests of bee-keepers who have the produce of their apiary to sell. The deposit system will meet the approval of all vendors, I should think; also cover the purchaser from fraud of any description—so that it will be a gain all round, and the small commission charged for holding the deposit until the completion of purchase will be infinitesimal compared to the boon of feeling secure against fraud.

Delays of the goods one ordered are very often the fault of railway companies, and those who complain of the negligence of manufacturers should make sure where the fault lies before they rush into print. I will give a case in point. On the 18th ult. I consigned a case of goods to a customer in Scotland, sending invoice same day as goods were dispatched. This case should have been delivered by the 21st or 22nd at latest, but on December 3rd I received a note, saying my customer had sent to the station for goods three or four times, but the railway people did not know anything about it: would I make inquiries at my end? I did so; but on the 4th I received

a postcard saying goods had arrived safe. Now, if this delay had happened in the middle of the honey season it must have caused a great deal of friction between buyer and seller, and probably some considerable loss to the purchaser. My advice, gleaned from several years' experience, to my brethren in the craft is, to place orders as early as possible. Manufacturers and supply dealers are *human*, and we must not forget that it—the supply business I mean—is very precarious. If the weather is fine and warm business is brisk; if it is dull and cold business is *nil*. It is as fluctuating as the barometer and thermometer. Then, don't let us be too hard on them. With a large apiary, run on commercial lines, I know something of the worry caused by delays, whether caused by railway companies, or by goods not being dispatched promptly by the manufacturer or dealer. If it should be in the middle of the honey season, and I want another case of sections, I tell them distinctly what train to send them by, that I will be there to meet them, enclosing cash for same, and it is very rare I get disappointed. Sections, foundation, smokers, feeders, dividers, &c., are generally tied up in parcels most in request by the dealer in anticipation of the busy time, and it only requires the *cash with order* for an address label to be attached, and it is sent promptly; but where customers order some special kind of goods not kept in stock they often upset the whole of the calculation of the appliance dealer for the day, causing delay all round, and the poor worried man closes the day something like the old man and the ass, in longing to please all he has given offence all round.

International.—I notice our brethren in America have been holding a great Bee Convention at Keokuk, Iowa, at which the project of holding a grand Bee and Honey Show in connexion with the World's Fair at Chicago in 1893 was brought forward and discussed, and several prominent bee-keepers' names were called to form a committee to carry out the project. They intend asking for room in the 'Exposition,' so that each nation shall have room for their exhibits in close proximity to each other, or grouped in one section or annexe. The bee appliances and apiarian products from Germany by themselves, decorated with the coat-of-arms and German flags; next Great Britain, with its coat-of-arms and standards; then France, and the Dominion of Canada, and each separate State of the United States. It appears from the discussion that their Governments vote them considerable sums of money towards the expenses attending the large exhibitions. Now, why cannot we, in the richest nation in the world, do likewise, and when the time comes send over a consignment of British honey and bee appliances? I opine it would surprise the 'cute Yankee to see the perfection to which our appliance manufacturers have attained in the art of hive-making. And as regards fixed distances, it is amusing to read of the curious devices that are suggested for spacing frames. The question of correct distances also still vexes them, and from $1\frac{1}{4}$ to $1\frac{5}{8}$ inch is advocated by different bee-keepers. But this is digressing, and the point was, How can we bee-keeping Britishers fill the space set apart for us at the forthcoming Exposition in Chicago in 1893? I think if our executive of the British Bee-keepers' Association would take the matter up, that if no direct and special support were given to our minor industry by the Government, that it could be included with some other kindred subject that would receive government support. If our Canadian friends could bring over an exhibit of eleven tons of honey to our Colonial Exhibition, and give four tons away in teaspoonfuls to advertise their wares, and yet return to the exhibitors 7*d.* to 9*d.* for comb honey and $5\frac{1}{2}$*d.* per pound for extracted on all exhibited, surely we could at least make a fair price for any amount of British honey in Chicago.

Completing Unfinished Sections.—This is a game that won't pay for the candle. All my unfinished sections, under eleven or twelve ounces in weight, are passed through the extractor, and then given back to the bees to clean out the honey left by the extractor; then taken off the hives and examined for wax-moth, and stored carefully away for use another year; and I have failed hitherto to see any difference between the partly built combs of the preceding year and those-built in the current one. Those sealed over one side, and filled but not sealed the other side, weighing, say, twelve ounces on an average, I place on the market for what they are worth, say two-thirds the price of the best sections, and in every season I could sell double the quantity I have of the cheaper unfinished sections. I sell them glazed or unglazed to suit customers, charging 1*s.* per dozen extra for the glazed one.—W. Woodley, *World's End, Newbury.*

THE TRIALS OF KEEPING BEES.

[478.] I have a good many trials and disappointments one way and another, in common with most bee-keepers, but I never anticipated anything in the shape of what has occurred to me this year, which I recount for the benefit of your readers.

When away from home one day during the swarming season a swarm from one of my hives (Carniolans, of course) alighted on a pear-tree in a neighbour's ground adjoining. My wife, not feeling equal to the task of hiving it, thought it had better remain till I reached home, and the best thing to do would be to send a polite message round to state what had occurred, and to suggest that a pony that was grazing close by should be removed to a safe distance in case of accident. The well-meant message was received in anything but a kindly spirit, as was soon apparent, for in a few minutes my wife perceived the neighbour making in the direction of the pear-tree, and, horror to relate! with matches in hand and a sack of shavings on his back. He was then seen to very cautiously place the

latter under the swarm, set it alight, and take to his heels as fast as he could travel. What was to be done now? To save the bees was the first thought. The servant-girl was pressed into the service, and with a volunteer in the shape of a boy living close by, who had seen me hive swarms, were quickly veiled and dispatched over the garden fence, and they soon rescued the poor bees from the flames and smoke, and brought them home in triumph. Oh, how I sometimes wish they had been left to their fate, so that I could have taught this gentleman a lesson as to the rights of property in bees in a clear and unmistakable manner! The sequel follows. When I got home there was great excitement. Everybody wanted to speak to me at once, but I soon grasped the situation when a letter was put into my hands to read. It was addressed to my wife, and was as follows (I enclose original):—

'Dear Madam,—I should like to know who gave your servant permission to trespass on our premises and destroy our property? Unless I have an apology by to-morrow, Thursday, July 3rd, I shall take proceedings without delay. I may mention, if my pony had been down there, as she usually is at that time, and had been stung by your bees, her value is not less than 30*l.*, without the damage she might have done to fence; and at the first time your bees were a nuisance to us, we thought it an accident on your part' (this refers to a former swarm), 'but it is now becoming a common occurrence, and I consider them dangerous to my family, tenants, and animals.—Yours respectfully, ———.'

To this I sent the following reply (which was returned with a corner turned down, on which was written, 'This is not what I ask for; I require an apology'):—

'Dear Sir,—A letter has just been handed to me addressed to my wife from Mrs. C. in reference to my bees swarming in your garden to-day. I may say I am somewhat surprised at the tone of it, and the unneighbourly way you have acted in the matter, as it seems to me totally uncalled for. Unfortunately it is impossible to control bees when they swarm so as to make them alight in a certain place, but I may mention that wherever they go they remain the property of their original owner, and if any damage is wilfully done to them, or if they are detained, their value is recoverable by law.—Yours truly, ———'

As I did not take any further notice, and as I suppose my apology did not seem likely to arrive, the police were appealed to, and I was somewhat surprised to receive a visit one afternoon from the district inspector. My version of the matter was quickly given, and we had a good laugh over the whole business, he telling me that I could only be sued for damage actually done in following the bees; but, of course, no damage had occurred.

What a luxury it is to have agreeable neighbours! but I have since found out that I have another who is not friendly disposed. On my way home one evening in the autumn I noticed a lot of bees in the road, evidently after something sweet that appeared to have been thrown on the ground. It was outside a little sweet-stuff shop, and I said to myself, 'The old woman has been washing out her bottles, and has emptied them in the road, and the bees have found it out.' This was not the case, as I soon afterwards discovered. I had not been indoors many minutes before some one came with a message. Would I come over to the sweetstuff-shop? I went at once, and was piloted by the old lady through the shop into a shed in the garden, and the following dialogue took place:—

Mrs. S.: 'I don't know what I shall do! I have been making up some elderberry wine to-day, and your bees have come and got in it and spoilt it all. They got in my shed. I have killed hundreds that were crawling about. I couldn't get rid of them.'

At this she took a cup and dipped it into the liquor, and sure enough they were as thick as they well could be. The stuff was in a bread-pan, being strained from the berries, and I should think contained quite a peck of bees.

I: 'Why ever didn't you cover over the pan with a cloth? You can't blame me for the bees getting into the wine; it is your own fault.'

Mrs. S. (indignantly): 'I can't see how you can say it is my fault. I think you ought to pay me for the damage.'

I: 'How do you know they are all my bees that have got in it? Several people keep bees about here, and you had better send round to them and hear what they have to say, and let me know further.'

Mrs. S.: 'Well, if you don't pay me for it I shall set the pan outside to-morrow, and it will kill a few more bees.'

I went home after this, and thinking over the matter, I said to myself, 'Well, perhaps, I had better buy the stuff, if she will sell it at a reasonable price. It may save the lives of a few bees. I sent round a message to ask what she would take for it. She summed it up as follows:—Sugar, 1*s.*; spice, 6*d.*; loss of time, 1*s.*—total, 2*s.* 6*d.* I could not stand the loss of time item, so sent over 1*s.* 6*d.*, which was indignantly refused with the remark, 'I would rather throw it down the sink than let you have it for 1*s.* 6*d.*' So the money was brought back. A few days afterwards I had a bill sent in by the old woman:

'Mr.———

From M—— S——

For damage of bees, 1*s.* 6*d.*'

which shall remain unreceipted.—WOODFORD.

PUBLISHING EXTRACTS FROM THE *B. J.*—A SUGGESTION.

[479.] May I throw out a suggestion which I think would be of great benefit to those who have been bee-keepers some years, and who wish to be informed of the latest advance in apiculture, but have not time to wade through the

weekly *Journal?* It is that a paper or pamphlet be issued either yearly or half-yearly (named 'Gleaner' or 'Report') containing the inventions, improvements, and new methods, &c., published during either of the above periods, and sent post free for 1*s.* or 6*d.*—HOLDERNESS, *Hull, December 5th*, 1890.

[The difficulties in carrying out proposals such as are suggested above resolve themselves into the very mundane question of *l. s. d.* We would gladly reprint any portion of the *B. J.* likely to be of use to bee-keepers if we could be safeguarded against loss. But to do this at least a thousand readers would require to be like-minded with our correspondent, and we fear that indispensable condition is not likely to be fulfilled. We may also say that for those who 'have not the time to wade through the weekly *Bee Journal*' there is our monthly *Record*, which for 2*s.* 6*d.* per annum post free will keep any one well posted in all that our correspondent desires.—EDS.]

HONEY COMPETITION.

[480.] Absence from Ireland has prevented me from remitting the enclosed 1*l.* 1*s.* sooner. Be good enough to acknowledge receipt of same through the *B. B. J.*, so that those who have taken an interest in the matter will see that I have fulfilled the conditions honourably. I thank you, Messrs. Editors, most sincerely for your services, and trust that I can accept my defeat with manliness, and if I have been the means of bringing about a national competition for next season I will consider the 'guinea' I now send as well spent. With my best wishes for the continued prosperity of the *B. J.*—JOHN D. MCNALLY.

HUNTS BEE-KEEPERS' ASSOCIATION.

A general meeting of the members of this Association took place on Saturday afternoon at the Fountain Hotel. Present—Mr. A. W. Marshall (in the chair), Rev. C. G. Hill (Hon. Sec.), Messrs. C. N. White, R. Brown, E. Allen, W. H. Woods (Hemingford), F. Hobbs (Alconbury), Bull (Brampton), Osborne, and Mrs. Allpres (Hemingford). The principal object of the meeting was to award the prizes taken by the members of the Society at the show of honey, &c., held at St. Neots in July last.

The Chairman remarked that he thought the only business was to distribute money, which was always pleasant to those who were to receive it.

Mr. Hill observed that one reason why the meeting was not held before was that Mr. Marshall had been away, and he did not think the meeting should be held without his presence, as he had been so useful to the Society since it was started.

The minutes of the meeting held on 7th June last were then read and confirmed, showing a balance against the Society of 1*l.* 13*s.* 5*d.* The awards were then distributed by the Secretary to those prize-winners who were present.

Class 1. For observatory hive:—Messrs. Edey & Sons, 5*s.* Class 2. Comb honey in hive:—Mr. Woods, 5*s.* Class 3. Sectional honey:—1, Mr. Woods, silver medal; 2, Mr. Dudley, 5*s*; 3, Mr. Sharpe, 2*s.* 6*d.* Class 4. Run honey in bottles:—1, Mr. Dudley, 7*s.* and bronze medal; 2, Messrs. Edey & Son, 5*s*; 3, Mr. A. W. Allpres, 2*s.* 6*d.* Class 5. Beeswax:—Mr. Hobbs, 2*s.* 6*d.* Class 6:—Mr. Woods, 5*s.*; Mr. Hobbs, 2*s.* 6*d.* Class 6 (Cottagers). Sectional honey:—Mr. Hobbs, 2*s.* 6*d.* Class 7. Run honey in bottles:—1, Mr. Hobbs, 5*s.*; 2, Mr. Woods, 2*s.* 6*d.* Movable bar-framed hive:—Messrs. Edey & Son, 7*s.*; Rev. C. G. Hill, 5*s.*

The Secretary said the medals had not yet arrived, so they could not be distributed.

The question of what constitutes a 'cottager' for exhibition purposes arose upon Mr. Woods taking awards in the general classes and in the cottagers' classes.

Mr. Woods said that he claimed to show as a cottager.

Mr. White said that had he known he should have objected. He considered he was only doing his duty to the Association, and he thought some definition should be arrived at.

Mr. Hobbs thought that if an exhibitor won in the amateur classes, he should no longer show in the cottagers' classes, and not step back to show in a lower class.

Mr. Hill considered that the object of the Society was that cottagers should be *bonâ fide* competitors as agricultural labourers and cottagers.

Mr. White remarked that when Secretary it was left to him to decide whether, in his opinion any one who presented himself was a cottage or not. He certainly should have objected to Mr. Woods, and the matter could have come before the meeting for decision.

Mr. Woods observed that he wanted to do the best he could for the Society, and make as many exhibits as he could.

Mr. Brown thought any one who took a silver medal in the general classes could not be considered a cottager.

Mr. White: The whole object of the Society is to encourage bee-culture among agricultural labourers and cottagers.

Mr. Woods: I thought it was to make the show as large as possible.

The Chairman: No; our object in starting the Society was to get the agricultural labourer to produce honey.

Mr. Hill thought the matter might be met by leaving it to the Secretary to decide who is a cottager.

Mr. White advocated a better class for cottagers.

Mr. Hill said that he should be glad to receive members' subscriptions. He had received letters from Lord Sandwich, Baron de Ramsey, and the Hon. A. E. Fellowes, M.P., who expressed regret at not being able to attend the meeting, but promised continued support.

A vote of thanks to the chairman on the motion of Mr. Hill, seconded by Mr. White, closed the meeting.

Queries and Replies.

[280.] *Buying Diseased Bees.*—I bought six hives of bees, and on examining find two of them with dirty combs, covered with a brown powder, and full of what I think is moth larvæ, just as one would expect combs to be when left in a damp place for months, unseen by bee or human being. Two of the combs had also been treated with formic acid. The bees were alive, and seemed fairly healthy, but without microscopical search there would be little chance of seeing foul brood; but a few cells had their cappings sunk. Underneath, in the floor-board, there was a hole, covered with a strip of tin, which projected in the front, after running along the hive floor, and forming an alighting-board. After seeing the condition these two stocks were in I rejected them. Was I right in this? I am a beginner, but am very fond of bees, and have managed very well this year, one hive getting about seventy-five pounds in the brood nest, another about sixty in the brood nest and only about fifteen pounds of surplus in a super for me. I only took this super and one frame untouched by brood.—C. F. PLUNKETT, *Barnstaple, December 6th.*

REPLY.—If the bees have been purchased as so many healthy stocks you will be perfectly justified in declining to receive any proved to be diseased, and the evidence of formic acid treatment having been resorted to looks suspicious on the face of it, while the sunken cell cappings are further evidence of disease. Any brood cells capped over at this period of the year should have their contents examined by thrusting the end of a match thrust to the bottom, and if on withdrawal it shows any signs of a brown or coffee-coloured sticky substance, reject the stocks if you can do so by the terms of purchase. The brown powder is not *à priori* an evidence of disease, though it is a sign of weakness, because the bees have allowed the pollen-mite (a small, round, light-coloured insect) to get a foothold among the pollen in the combs, and strong stocks can always keep these intruders away.

[281.] *Candied Honey in Combs.*—I have about twenty standard frames filled with honey, which up to the present I have been unable to extract for want of time, and which I now desire to do, but fear it has become candied; if so, and the extractor will not remove it, what would be the best way to get the honey from the comb? Even if the extractor will take some out there will be the usual 'drippings' left in the combs, which cannot now be given to the bees to clean. I am going to melt all the honey in frames, so don't mind what process it goes under so long as I get honey away, although I don't know but what it's just as well where it is, as I have about eighty pounds of last season's (1889) by me and cannot sell it.—IGNORAMUS, *Fakenham.*

REPLY.—We should first extract all honey that can be got away by the machine, then cut up the combs into an earthenware dish, which place in a tin dish partly filled with water; put the whole into the oven and subject it to a moderate heat until the wax and granulated honey is thoroughly melted; remove and allow it to cool, when the wax may be lifted off in a cake. If the honey you have by you is of good quality there is no reason why you should not be able to sell it this year. Have you tried advertising?

[282.] *Ventilating a Workshop, Removing Propolis from Glass, &c.*—I would be glad of an answer to the following:—1. Has a book been published containing abstracts from the *B.B. Journal* since it was first issued, showing the progress made in bee-keeping year by year? 2. Which is the easiest way of removing propolis from glass? I built a workshop this year, sixteen feet by nine, height to ridge nine feet, all in sections; the walls are three-quarter-inch floor-boarding, and run perpendicularly. The roof is of the same material, covered with Leeds roofing felt. There are four windows, three feet by two, which slide, three towards the south, and one with the door towards the west. Now, when on account of robber bees I could not open the windows, the heat was intolerable on sunny days. I should, therefore, like to know the best way of ventilating the hut? I am thinking of cutting four perpendicular openings at each of the gable ends, say about twelve inches long by two and a half inches wide, and fixing outside a framework, fashioned like a venetian blind, to throw off rain and exclude light, and having inside another framework in which slits, to be covered with perforated zinc, correspond to those in the wall, but which, by sliding a few inches, will close the holes in the wall. 3. Will this answer the purpose? or perhaps by putting an inner wall of match-boarding to the hut I might have a more even temperature. I have put thirty-five hives into winter quarters, thirty of which are strong. Our harvest, as in most other places, has been but moderate (three hundredweight from thirty-six hives, chiefly bean honey gathered in June, though clover bloom was never more abundant, and nine hives I took to Whitby moors I brought back two hundredweight heavier. Last year I suggested that there should be a competition in trophies of honey between the different district associations, which I hope will be carried out next year.—HOLDERNESS, *Hull.*

REPLY.—1. No. The only republications from the *B.J.* are in the form of cheap pamphlets on special branches of bee-management. 2. Methylated spirit will dissolve propolis on glass or on the hands, when warm water will remove it. 3. No doubt the ventilating openings in gable ends of the building will be of great advantage, but under nearly similar circumstances we found very considerable benefit from the use of a cheap screen of unbleached calico stretched on a light frame at about twelve inches above the whole surface of the roof. The calico we used only cost two shillings per dozen

yards, and after standing the summer, if carefully stowed away till the following year, a screen such as we have described will last several seasons.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers of correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

J. TURNOCK, JUN.—Sample sent is heather honey of very fair quality. The flavour and aroma to which you object is that of the heather, which is so highly esteemed by many consumers. As for its being 'fit to eat,' we wish our own bees had gathered a few pounds of it this year for our own table!

GEO. JOHNSTON.—We shall at all times be glad to receive anything of interest from you about bees and bee-keeping.

THE QUEEN.

On a throne of gold—ay, purer far
Than light of sun or moon or star,
I hold my reign, with royal sway,
Over my subjects, day by day;
My hive, a tiny, busy world,
Where labour's flag is never furled.
A lesson to the earth I teach,
Perfect beyond all human speech.
When spring, with all its luscious sweets,
Ladens the air; when summer greets
The earth with largess of delight,
Then do I reign with glorious might,
Queen of my own enchanted sphere,
Ruling my subjects far and near.
There are 'workers' in our busy land,
And 'drones'—they're seen on every hand;
But a lesson from the busy bee
The outside world may learn from me:
That in labour there is sweetest zest;
That the fruits of toil are still the best.

J. KEYNTON.—*Gleanings.*

According to my judgment, the principal requisite for the preservation of bees in winter are that the hive contain a sufficient number of bees to maintain a certain degree of warmth, that they have a plentiful store of honey, and that they be secluded from the inclemency of snow and rain.—THACKER (1829).

UNITE YOUR WEAK STOCKS.—Want of numbers is injurious, not only because it is accompanied with the want of the requisite warmth, but also because it seems greatly to dispirit the bees; and there are many instances of hives being deserted in the spring while sufficiently provided with honey, they having been disheartened by paucity of members.—MILTON.

THE

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Editorial, Notices, &c.

LIQUID FRUIT SUGAR—WHAT IS IT?

A question of the first importance, not only to bee-keepers but to the bee-keeping industry, has arisen from the publication of a letter (No. 437) in the *B.J.* of November 13th, in which the Committee of the Lancashire and Cheshire B.K.A. requested our opinion as to the desirability or otherwise of the substance sold under the above name being used for feeding bees. In reply we gave our views as desired, and hoped the matter would have ended there. We have since, however, been favoured with a communication from the firm in London who have been appointed sole importers of the article, and who naturally resent anything being said tending to depreciate it in the eyes of the persons who are likely to use it as bee-food. But when the firm in question, or their agents, make direct personal application to gentlemen who are bee-keepers and readers of this paper, it becomes our duty to at once take cognisance of the fact, representing, as the *B.B. Journal* does, in its widest sense, the bee-industry of the country.

We, therefore, that no injustice may be done on our part, print the letter in full, and give it perhaps more prominence than desired by the writers, in order to state still more forcibly the fatal mistake we consider bee-keepers will make if they give countenance to this so-called liquid fruit sugar in any form or shape whatever.

What has caused American and other foreign honies (?) to be looked on with such universal suspicion in this country as to be to some extent unsaleable? We say unhesitatingly, its admixture by unprincipled persons with the substance known as glucose. Good and genuine honey is gathered in America, and is sent over here pure as any honey can be, yet it will take years to undo the prejudice against American honey in this country, because it was proved to be in many cases largely adulterated with glucose.

The following is the letter referred to:—

LIQUID FRUIT SUGAR.

DEAR SIRS,—Your issue of November 13th contains a reply to the Committee of the Lancashire and Cheshire Bee-keepers' Association, who write for your opinion regarding the advisability of using *liquid fruit sugar* for feeding bees.

We feel sure you will permit us, in common fairness, to reply to your remarks upon *liquid fruit sugar*, which is, as you suppose, identical with Dr. Follenius' fruit sugar, and of which we have been appointed sole importers for this country.

As you apparently rely upon Dr. de Planta as your authority for the remarks you make, and we think rightly so, we beg to hand herewith an extract from a paper read before the Swiss Bee-keepers' Association by that gentleman, in which he completely retracts all his former views on the subject as quoted by you!

This is what he says, addressing a large meeting of Swiss bee-keepers at Schaffhausen (we forward herewith the printed report in confirmation):—

'I had the pleasure to receive a few weeks ago a letter from Dr. Follenius, the manufacturer of this fruit sugar, who had read my report in the *Bulletin Bertrand*, in which he had the kindness to correct my erroneous views regarding the composition of his product, fruit sugar. I cannot do better than read to you, with his permission, his letter.'

Here follows the letter, which is of considerable length, but which is to the effect that, firstly, fruit sugar is, like honey, a composition in equal parts of dextrose and levulose, and does *not*, as Dr. de Planta previously stated, consist of levulose only. Secondly, that fruit sugar is therefore honey (dextrose and levulose) without aroma.

Dr. de Planta concludes by saying:—

'Now, however, since it has been proved that the article produced by Dr. Follenius is invert sugar, it consists of the same substance as honey and nectar. I fully concur with his views, and

see no reason why I should not regard fruit sugar as an article eminently suitable for bee-feeding.'

We think we have now disposed of your scientific objections to fruit sugar, but would refer briefly to some of the exceedingly grave charges made by you as editors.

Firstly, as to its being 'introduced under a false name.'

The reason why this article was called fruit sugar is because the only other suitable term in German is *invert* sugar, which could not be used, as it would then be confounded with glucose. The reason why *we* have retained a very similar title is simply because we wished it to be recognised here as the same article so highly spoken of by Continental authorities, including bee-keepers, wine-growers, preservers, &c.

Secondly, as to your remark that 'every quack medicine vendor can get his testimonials,' by which you undoubtedly infer that the testimonials given to the proprietors of fruit sugar are false or worthless, we would simply remark that the testimonials in favour of fruit sugar are *genuine*. They have been received from generals, mayors, lawyers, professors, doctors, and *editors*, and we need scarcely add that the originals will be gladly shown.

Thirdly, not being bee-keepers ourselves, we do not understand exactly what you mean by 'unlawful purposes' as applied to the feeding of bees, but venture to suggest that it is a highly objectionable term to use under any circumstances whatsoever.

We trust that you will give this letter a prominent place in your *Journal*, so as to remove any unfavourable impression which may have been formed amongst the readers of your *Journal*, through your imperfect knowledge of, and unwarranted strictures on, *liquid fruit sugar*.

We send copy of this letter to the Lancashire and Cheshire Bee-keepers' Association for their information.—Yours faithfully, D. A. Hume & Co., 38 *Mincing Lane, London, November 20th*, 1890.

As a direct reply to the above we would say that, considering the vital importance not only to bee-keepers, but to the bee-keeping industry in general, it is our duty to make some remarks and point out the dangers incurred by employing a substance which puts temptation in the way of the unscrupulous to use it for improper purposes.

Those of our readers who are chemists will know the chemical difference between the various sugars, but for those who are not an explanation is necessary.

Fruit sugar is called *levulose*, and grape sugar *dextrose*, both belonging to the glucose group, and are represented by the symbols $C_6 H_{12} O_6$.

A mixture of levulose and dextrose is understood by chemists to be *glucose*.

Cane sugar, boiled with dilute acids, is split into equal parts of dextrose and levulose, *i.e.*, converted into glucose. The mixture of the two is called *invert sugar*. From this it will be seen that invert sugar and glucose are synonymous terms.

There is, however, another substance in commerce which goes by the name of glucose, and it is manufactured from corn starch in the United States and potato starch in Germany, by boiling it with dilute sulphuric acid and removing the excess of the acid with chalk. If in this treatment the transformation is not complete, the product is an impure glucose, and consists of a mixture of dextrose, maltose, and dextrine. Now, in order to arrive at what this substance sold by the name of fruit sugar really was, the following correspondence has passed between ourselves and Messrs. Hume & Co. :—

Dear Sirs,—Referring to liquid fruit sugar, this is in reality invert sugar—glucose. What is the difference between it and glucose?—Yours truly, T. W. Cowan, *December 8th*, 1890.

Dear Sir,—Referring to your letter of yesterday's date, *glucose*, as generally understood, is made from starch (potatoes, maize, &c.), and is composed of dextrose, maltose, and dextrine; but *inverted sugar* is a mixture of dextrose and levulose, that is to say, practically the same sugar as found in fruits.—Yours faithfully, D. A. Hume & Co., *December 9th*, 1890.

Dear Sirs,—I do not think you quite understand my question of the 8th inst. I did not ask about the composition of 'glucose as generally understood,' but about *glucose per se*.

Glucose is a mixture of levulose (fruit sugar) and dextrose (grape sugar).

Inverted sugar is glucose, being a similar mixture to levulose and dextrose.

You say *liquid fruit sugar* is a mixture of levulose and dextrose, and is therefore *inverted sugar*. What is, therefore, the difference between your *inverted sugar* and *glucose*?—Yours truly, T. W. Cowan, *December 10th*, 1890.

Dear Sir,—Replying to your letter of 10th inst. Inverted sugar, which is sometimes called glucose, is a mixture of levulose and dextrose, and that is the nature of our liquid fruit sugar. Glucose—sugar made from starch by treatment with sulphuric acid—has an entirely different composition, being a mixture of dextrose, maltose, and dextrine, and would of course be of no use for feeding bees.—Yours faithfully, D. A. Hume & Co., *December 11th*, 1890.

From the above letters it will be seen that this fruit sugar is not levulose only, as its name would imply, but is in reality *glucose*.

Pure it may be, and thus differ from commercial glucose, but still glucose.

We have read the whole of the article sent with the above letter, and from it we gather that Dr. de Planta was deceived by the name, and that this substance is not *fruit sugar* at all, but *invert sugar*, or, in other words, *glucose*. The quotations given above are quite correct translations, but the whole of Dr. de Planta's statements are not given. Being too long, we cannot give the translation of the whole, but Dr. de Planta says that in making his remarks he was deceived by the name of *fruit sugar*, which implied that one-half of invert sugar (dextrose, or grape sugar) was artificially removed, for fruit sugar is only one-half of the combination called invert sugar. Further, Dr. de Planta says: 'The proper name for this product of Follenius is "invert sugar." Probably they have not adopted this name because it is unpopular.'

Messrs. Hume & Co. say that the term 'invert sugar' 'could not be used, as it would then be confounded with glucose.' But it *is* 'glucose,' and their own letters show it to be nothing more nor less; therefore, we contend that we were perfectly justified in stating that this preparation had been introduced under a *false name*. The agents themselves say that the name was adopted so that it should not be confounded with glucose. We accept this explanation, but think it would have been better had they called it by its proper name.

Dr. de Planta gives us a clue to the reason when he says it is probably because glucose is unpopular. Glucose is, and has been, the enemy of bee-keepers, and every honest bee-keeper is bound, for his own protection, to make war against it. All the adulteration of honey has been carried out by means of glucose, and it is this competition of glucose with genuine honey that has brought the commercial prices down so low.

In his article Dr. de Planta further says that although composed the same as invert sugar, of equal parts of levulose and dextrose, they may not have the same physiological action in this combination. For although the carbohydrates and albumen have the same composition, yet physiologically they act differently. Dr. Planta is therefore very cautious in recommending this substance, and only does so subject to the future experience of bee-keepers. We have gone thus far into the scientific part to show that the substance called 'liquid fruit sugar' is not fruit sugar at all, but a mixture of fruit and grape sugar, and that it may possibly not have the same physiological action as a mixture of levulose and dextrose, as is found in honey. However, this aspect of the question is not of so great importance to the bee-keeping industry as the one we shall allude to later on.

Dr. Follenius says because this *so-called* fruit sugar is like honey, a composition in equal parts of dextrose and levulose, that fruit sugar is therefore honey without aroma. We most emphatically deny this, and claim that the aroma is one of the principal constituents of honey, and that no compound without the aroma can be honey. The aroma is derived from the essential oils in the plants from which the nectar is extracted, every different plant imparting its peculiar aroma. Robbed of this honey becomes nothing better than glucose, and can no longer be called honey. Then there is formic acid, which should not be omitted when speaking of its composition, besides saccharine substances peculiar to honey. Liquid fruit sugar is therefore not honey.

Objection is taken to our saying that 'every quack medicine vendor can get his testimonials,' and the statement is made that by this we undoubtedly infer that the testimonials are false or worthless. We are sorry Messrs. Hume & Co. have interpreted us in this way, for we did not wish to infer anything of the kind; but what we wish to be understood is that we attach no importance or value to testimonials. We have not the slightest doubt that the testimonials in favour of fruit sugar, like those in favour of patent medicines and appliances, are perfectly genuine, and express the *bonâ fide* opinions of the writers, who honestly believe that they have in effect been cured by them, when really the cure ought to be attributed to some other cause, and not to the remedies taken. We know several such instances amongst our own acquaintances, so that although testimonials may be genuine, and be received from such respectabilities as 'generals, mayors, lawyers, professors, doctors, and *editors*,' we do not attach much value to them. We will give an example. Some years ago we heard of the revolution the invention of Kœrbs was about to create in bee-keeping. This one-sided foundation was taken up largely by bee-keepers in Germany. Testimonials as to its value to bee-keepers poured in on all sides. Editors

of bee journals were carried away by the flood, and even such an experienced bee-keeper as M. Gravenhorst, whose knowledge of bee-keeping no one can doubt, very strongly recommended it. The whole thing has turned out a complete *fiasco*. How about the testimonials in this case? Must we suppose that they were false, or that those whom we considered always as respectable authorities were deceiving? No, certainly not; but we take the more charitable view and believe that, although the testimonials are worthless, the writers really believed what they were stating—erroneously, as it was subsequently proved.

We now come to the last objection urged against our mentioning 'unlawful purposes' as applied to feeding bees. We would here refer to Dr. Planta's paper sent to us, in which he makes a second reservation as to the facility for adulteration which this product of Dr. Follenius offers. He did not enter fully into this question; but it is one that concerns bee-keepers, and we feel bound to do so. We have stated that *glucose* has been the enemy of bee-keeping. At one time the country was flooded with so-called American honey; this, as was proved by analysis, consisted generally of nothing but glucose. The British Bee-keepers' Association, recognising the injury that was being done not only to bee-keepers generally, but to the public also, commenced a war against these adulterations, and was the means of destroying the trade in false honey. The introduction of this so-called fruit sugar opens the door for its use in adulteration, and if it is countenanced by Bee Associations the same battle will have to be fought over again. But it would be much more serious than formerly, because from its impurities commercial glucose was much more easy to detect. Then, again, it is putting a temptation in the way of unscrupulous persons, not only to mix it with honey but also to allow it to be mixed with honey by the bees. The practice of feeding bees with sugar syrup for the purpose of making comb honey has been stopped, such syrup-fed comb being easy to detect; but the use of this substance would be much more difficult to detect, and would make fraud only too easy. It has been generally thought that granulation was a guarantee of the purity of honey, but this substance granulates, therefore this test would be useless. These are what we call 'unlawful purposes,' and bee-keepers know perfectly well what we mean when we use these words. We have to protect the interests of bee-keepers and to put them on their guard against using substances that are likely to injure the industry.

The public is already, from a want of knowledge, only too ready to believe in adulteration; therefore bee-keepers cannot be too particular in avoiding the introduction of any artificial products that could be used for adulteration. We have pointed out that in pure cane sugar we have everything the bees require. The conversion of the sugar costs the bees nothing. In this artificial product there is 25 per cent. of water and only 75·07 per cent. of sugar, and this sugar is not fruit sugar but glucose. We consider beetroot sugar not suitable for bees under any circumstances. and cannot recommend a substance manufactured from beetroot sugar as one suitable to replace cane sugar. Had we room, we should like to translate and reproduce an article from the *Revue Internationale*, which points out what would be the result of the introduction of this substance into the apiary, and cautions bee-keepers that if they are anxious for the reputation of their honey, never to purchase any of this syrup, or allow it to be introduced into their apiaries. We do not mind under what name glucose may be introduced, we shall feel bound to caution bee-keepers of the great danger they may incur by its introduction into their apiaries, and thus to protect the interests of bee-keeping.

British honey has hitherto made for itself a reputation for being what it purports to be, viz., honey—some good, some bad, some indifferent, but *honey*, genuine as gathered by the bee from natural sources; but once let us countenance the use of glucose in any shape or form for feeding bees, and we may bid good-bye to bee-keeping. In our opinion it would surely and certainly destroy the confidence of consumers in the purity and genuineness of the product, and so far from using it as a table luxury they would give it as wide a berth as is now given to much of the foreign stuff so nearly unsaleable here. The gentlemen who would force this 'liquid fruit sugar' into notice as good for feeding bees, not being bee-keepers themselves, do not see the harm they will do the pursuit, otherwise, we charitably presume, they would spare us. *We* do see the danger, and we trust that our readers will see it too.

THE CHEMISTRY OF THE HIVE.

(*Concluded from page* 588.)

Now, the rotation to the left of levulose is greater than the rotation of the same quantity of levulose is to the right. Hence, when mixed together in about equal quantities, as in honey, the polarised ray should be twisted towards the left side. This indeed is the case to a slight extent. All other sugars turning to the right, it follows that whatever saccharine admixture is made to honey, the mixture must polarise to the right, thus possessing perfectly distinct optical properties readily distinguishing it from genuine honey. This dextro-rotation is especially marked in the case of starch and its congeners, and nothing is easier than to detect even a small amount of admixture of starch sugars—corn syrup, as their mixture is called—with genuine honey.

In addition to this we have other means to distinguish between these starch sugars and honey. Most saccharine matters when brought into contact with yeast at a suitable temperature undergo fermentation, that is to say, they essentially split up into alcohol and carbonic acid. Honey thus ferments when diluted with water, and after the action of yeast has run its course hardly anything remains of the honey but spirit and some amount of acid and glycerine, as products of the fermentation, the resulting solution being without appreciable action upon polarised light.

But allow a solution of starch sugar, or corn syrup, to ferment, and you will find that long before the total sugary substance has decomposed, the activity of the yeast will have come to a stop, and a very considerable portion of the syrup is left proof against the attack of the yeast: in other words, unfermentable. And examining this unfermentable portion with polarised light, it is seen to polarise most strongly to the *right*.

And, lastly, it is quite easy generally to recognise the portion of acid, mostly sulphuric acid, which has been used to convert the starch into corn sugar. It is practically impossible, by subsequent purification of the product, to get rid of this acid, and, as a consequence, it appears in the honey, so called, which is made with it. By adding to a clear solution of such syrup or honey containing it, a solution of barium chloride, a white turbidity at once makes its appearance, varying in density with the quality of corn syrup present and its state of purity, and caused by sulphuric acid contained in it. Pure honey is practically devoid of any mineral constituents, sulphuric acid among them, and remains perfectly clear on the addition of chloride of barium.

Should the manufacturer of spurious honey, as he almost invariably does, employ corn syrup as the basis of his compound—the price of syrup being low, and its appearance more like honey than that of other sugars—it is, you will see, a matter of very little difficulty to detect the fraud.

But should the time arrive—and I trust I may not in any way by these remarks contribute towards hastening its advent—when cane sugar, scientifically treated with acid, the latter being, after it has fulfilled its purpose, completely and without leaving any trace removed from the product, I apprehend that the chances will be but very remote of distinguishing such an artificial compound from the pure product of the bee, because, indeed, both of them are made up of identical substances in analogous proportion, namely, dextrose and levulose.

After having said so much about the composition of wax and honey, I must proceed to the next division of the subject, namely, the food of the bee.

Every animal requires for the sustenance of its life and the growth of its body four distinct classes of food constituents—namely, water, mineral substances, nitrogenous matters, and carbonaceous materials; and the bee, of course, is no exception to this great rule of nature. The body of every living animal consisting more or less largely of water, the importance of this compound need hardly be pointed out as a constituent of the bee's food. But when it is remembered that honey contains about one-fifth of its weight of water, and that the quality and nature of the water taken by the bee is apt, more or ess, to influence the flavour of the honey, the importance of the water supply of the bee becomes all the more apparent. Of mineral constituents I need say but little, for although the body of the insect itself includes a not inconsiderable proportion of phosphatic and other mineral materials, yet its products, honey and wax, are practically devoid of ash constituents. There remain for discussion, then, only the two classes of organic food matters, nitrogenous and carbonaceous. The former are represented by the pollen, the latter by the nectar collected from the flowers. Now, like the contents of every living vegetable cell, pollen consists not of one uniform mass, but is made up by the union of a variety of substances belonging to the class of albumenoids, all very nearly alike in percentage composition, yet differing in their properties, both physical and chemical. Nectar essentially is an aqueous solution of sugar; but this sugar is not, as one might expect, identical with those which, as I have shown, form the bulk of honey, viz., dextrose and levulose, but it in the case of most flowers consists of cane sugar.

The question, then, will naturally arise, if bees get neither wax nor, in the strict sense of the word, honey from the flowers, where do these products proceed from? How are they made in the body of the insect, and from which of its food materials?

It is often stated, in works dealing with this subject, that among the constituents of plant-cells wax could be detected; and if this were so, it would be but likely that also pollen included a certain percentage of wax, and nothing would have to be done by the bees but to take the ready-formed material wherewith to build the cells. Now, it cannot be denied that there

are matters among the substances from which leaves and other vegetable structures are built up which closely resemble wax. But vegetable wax, so called, chemically examined, is either found to be no wax at all, but only ordinary fat—that is to say, a compound including glycerine, or a waxy matter allied in composition to beeswax, but yet most materially differing from it in composition. Never yet has a vegetable wax been found to consist of cerotic acid and of palmitate of myricyle. In addition to this fact we have some interesting experiments of Liebig, who fed bees upon saccharine vegetable matters without allowing them pollen or similar materials, and yet the bees went on secreting wax, much more, indeed, than would by any possibility have been contained in the food matters themselves. So that we can take it to be fully established, both from the absence from the vegetable kingdom of any substance agreeing in composition with beeswax, and from the experiments just referred to, that wax is a secretion, a product formed in the body of the bee itself from other materials.

Let us examine for a moment how the substances most nearly related to wax—namely, fatty matters—are formed in larger animals. Until quite recently it has been assumed that in all cases in which fat is deposited in the body it has either been derived from the fat given with or from starchy and saccharine constituents of the food. That such is the case in very many instances is fully proved by the fact that such constituents are the most suitable for the fattening of animals, and that the quantity of fat deposited is greater than could be accounted for if it were assumed that any other food materials were the actual fat producers. By microscopical observation it has, however, been found that fat globules are secreted by cells which are devoid of either starch or sugar, and merely contain nitrogenous protoplasm; and from this, as well as from carefully conducted feeding experiments with nitrogenous food matters, it has been established beyond doubt that in part, at least, the fat must be formed from nitrogenous substances. It is, therefore, in the case of the bee equally possible that pollen or sugar is the primary material from which bee-fat—that is to say, beeswax—is derived.

But when we come chemically to examine the composition of fat, we find that those fat deposits, which are evidently derived from carbohydrates, the bulk of the body fat of pigs or oxen, are composed merely of the glycerides of palmitic, stearic, and oleic acids. But when we inquire into the nature of fat, which is equally certain the product of the splitting up of nitrogenous constituents, namely, the fat of milk, we find its composition to be different from that of ordinary tissue fat, inasmuch as it includes glycerides of a variety of fatty acids of a lower number of carbon particles. Reasoning from analogy I feel convinced that beeswax does much more nearly correspond in its derivation with butter fat than with ordinary tissue fat, although, as I have had occasion to explain before, it stands on the other end of the chain, inasmuch as it contains the most complex representatives of fatty acids. But when we consider the relatively high temperature obtaining in the bodies of cows and other milk-secreting animals and the doubtless far lower temperature of each individual bee, we can quite understand the reason why the nitrogenous matter should in the one case (that of the cow) be much more deeply affected by the processes of animal oxidation than in the other. I consider, then, that the pollen, or rather its nitrogenous constituents, furnishes the material from which the wax is derived, and accordingly should say that when bees are required to construct new hives it would be well to supply them liberally with nitrogenous food. When they merely fill cells which are already constructed no more nitrogenous matter will be needed than is used up in the maintenance of their muscles and other nitrogenous structures.

Now as to the sugar of the honey. I have already referred to the fact that the sweet secretion of the flowers mainly consists of cane sugar, and that therefore it has to undergo some change before it is stored in the comb in the form of honey. Cane sugar, on being heated with an acid, very readily yields dextrose and levulose: but the bee, of course, cannot have recourse to such means. How, then, is this change brought about?

In all digestive processes which take place in the body of animals, certain solvent substances, ferments, are called into play, whose function it is to dissolve those food constituents which are solid, and to alter others into such compounds as can readily be absorbed and brought into circulation. Thus, in the case of nitrogenous matter, the *pepsin* contained in the gastric juice readily brings them into solution; in case of starch our saliva exerts a most powerful and almost instantaneous action. In the vegetable kingdom also ferments are numerous; in fact in all cases of digestion and of germinative growth ferments are the most important solving agents. What to the chemist are acids, that to the living cell is the ferment. An analogous change of a very simple nature converts the cane sugar of the flower in the body of the bee into the mixture of levulose and dextrose, which forms the bulk of honey. It follows that if bees have to be fed artificially, the material which should reasonably be taken would be cane sugar.

To sum up, I have endeavoured to show that both honey and wax are of far more constant composition than has been hitherto supposed; that by reason of this relative consistency it is possible—nay, easy—to detect adulteration of these products; that both are true animal secretions, and not merely taken ready formed from the flowers visited by the bees; that wax is produced, in all probability, by the digestion and oxidation of the pollen, while honey is the result of the inversion, by ferment-changes, of the natural sugar of the flower into the two sugars which mainly make up the product.

Correspondence.

The Editors do not hold themselves responsible for the opinions expressed by correspondents. No notice will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITORS of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements.*)

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

IN THE HUT.

'Water, water, everywhere,
And all the boards did shrink;
Water, water, everywhere,
Nor any drop *of* drink.'

COLERIDGE'S *Ancient Mariner* (very slightly altered).

[481.] Nothing to drink of a pleasing nature in the Hut certainly, for when we opened it, with a tea-fight, it was solemnly dedicated to 'total abstinence,' but I have certainly got my punishment for going to extremes. An unerring Nemesis has dogged my heels whenever I have haunted the Hut, and she (Nemesis) has taken the shape of rain-water. Although tongued and grooved in all parts, felt-covered, painted, tarred, and what-not, one can calculate to a certainty on finding the Hut 'take up a collection' when there's rain about. Only this afternoon I reached a rapid feeder down from a shelf only to find it full of water. I cannot make it either bee or waterproof entirely, it seems.

I fear I must 'own up' to our sturdy friend Walton, and say that I was indeed in earnest when I said I intended some time to try and force bees up into shallow frames by very rapid feeding *immediately* before taking them to moors. I should clap the crate on at once on reaching the heather, if it were in full bloom, and I fail to see where the workers *could* store the honey they got except in the loft. Of course, if bees have nothing else to do they may cart stuff about the hive just to keep the warehouse bees' hands in. Now, fairly, if I had suggested quite the *opposite* course, viz., a *full* attic and an *empty* nursery, should I not have been faced with the fact that the honey would have been carted into the *lower* storey? If honey is to be got, every hand is at work, and will surely store the honey in the only empty cells—those in the shallow-frame super. I would only advocate again my proposal in such cases as when the heather is 'on,' and to those who are dubious about the result I say, when you feed up a few days before the trip, use extracted honey, especially if the heather be not quite in full bloom, and such as is hoisted upstairs will be mixed with the heather, and give what to my mind is the *crême de la crême* of delicious honey. We can afford extracted below, but not heather, and every moorman will bear me out when I speak of the disappointment, in medium seasons, of finding a heavy brood nest without surplus. However, it is only a suggestion, and I am not going to fasten myself to it until it has been tried; the greatest objection, I think will be the check to breeding.

A month ago (p. 550) you gave us a little information about bee-keeping a hundred years ago. Well, I find that a certain Greek gentleman of the name of Solon lived about 2500 years ago, and was a member of the legal profession, and by his wisdom rose to be a ruler in Athens (one of the seven sages). One of his laws was, 'that if any one would raise stocks of bees he was to place them 300 feet from those already raised by another.' Good, wise, old Solon, to decree that bee-keepers must have their apiaries 100 yards apart! I suppose this was to avoid rows about ownership of swarms. These were the fierce honey-getters of Attica, who mixed thyme nectar with other sorts, and made the honey world famous.

Here is a sad and sorry joke. The use of the word thyme suggests that a few lines ago I used the word sage; and then comes the painful mental association that just a year ago, Dec. 21, 1889, an old friend passed away, Mr. George Henderson, who playfully permitted 'Amateur Expert' and 'X-Tractor' to dub him 'The Sage.' This because of his erudition. Whoever reads these lines, from editor to comp., and who had his friendship, will call to mind this Christmas his cheery words and kindly acts:

'Friendship! mysterious cement of the soul!
Sweetener of life, and solder of society!'

Let us also remember two eminent bee-keepers who also are not with us—G. Raynor and Wm. Raitt. Surely the close of the year brings sad thoughts. Many there are whom we are glad to remember are still living bee-keepers, who have made their mark in times past, amongst them being Mr. C. N. Abbott and 'Amateur Expert' (thank you, Mr. Walton, for the reminder), Dr. Bartrum, T. B. Blow, John Hooker, W. B. Webster, and many more, whose writings in your columns were always welcomed by your readers.

In a case reported in *British Bee Journal*, pp. 575-590, Editor *versus* A. J. H. Wood, wherein plaintiff maintains that single-walled hives (as used by defendant and others of his way of thinking), are *not* sufficient protection against cold; and defendant on the other hand holdeth up his end of the plank by contending that they *are*, even in the severest winter: present deponent sayeth that a few years ago he tried various hives, wintered on various plans. Both thin and thick walls wintered their bees well, because the *other conditions* were varied according to thickness of wall; but summing up his experiments, 'X-Tractor' concluded, for his own satisfaction, at least, that those bees which were kept altogether warmest, with dryness of air and plenty of food, with cork-filled space between sides, came out the best in the spring, and so on downwards in proportion as protection was less and less afforded.

Dear brother bee-keeper, who has been with me 'in the Hut' many a time during the past few years—in my mind's eye—pray accept the hearty good wishes at the close of another decade of—X-Tractor.

HOUSE APIARIES AND A NEW DEPARTURE.

[482.] How pleasant, nice, and warm it is inside of my bee-house! I am shivering at the idea of all the poor bees in the open, each hive separate, the frost playing around it, entrances wide open, the bees hard at work to keep themselves warm—yes, alive; a death struggle anyhow! They gorge their poor bodies full, unnaturally, reminding us of a poor fellow who gets a drop of rum to warm himself—or rather to burn his inside out. What an unnatural piece of work in both, particularly our summer birds, who do not leave the warm cluster unless the thermometer points to forty outside. We have had now, for a length of time, a good deal more than the representative forty—this stupid, deceiving reckoning—*below* freezing-point, viz., twelve, fourteen, and sixteen degrees of frost each, night after night, bleak and hard as iron—there is no more snow's warm coverings left now—with a freezing, dry, east wind. How the poor little pets, our summer birds, will struggle to keep the cold in their hives down—yes, down—to the entrances, kept wide open, where the bitter cold enters direct. It is an absolute unkindness, a right-down cruelty to animals from beginning to end, a disgrace almost for so many good men who all keep their pets in this terrible condition. It is simple madness to pile a fire up in the fireplace, only or mainly to warm the chimney-pot, in this weather, but leave the doors open or what is much worse the entrances of beehives full width—to get all the frost and cold in first and let the bees struggle to fire up inside!

I am wintering about thirty hives in my not only closed bee-house, but it has hot-water pipes underneath inside, and the temperature is fifty in it, like a greenhouse, and keeping frost out on the same principle; not only that but keeping my beehives warm also, and as the main point for this purpose all my hives are single-walled, made of half-inch boards, no tops, no bottoms, square boxes in which the frames hang. They don't cost a shilling each (but don't tell the appliance makers, it would spoil their business). A half-inch floor-board with an inch and a half tunnel in it, and a half-inch board on the top to keep the winter quilt and packing in place, complete my hives, which thus stand the one and a half inch (for tunnel) away from the outside boards of the house, surrounded on all sides on the top and bottom by the fifty degrees warm inside temperature, or call it rather eighteen degrees above freezing-point, or of warmth, when we register fourteen and sixteen degrees of frost outside, which the poor creatures outside have to endure. Which sounds to reason?—which a madman's treatment for such delicate little summer birds? As an argument, I will grant it does not pay, but no judge would listen to that. If you keep animals they should be looked after in such weather as we are experiencing and attending to also. After such a bad season, how many will starve for want of warmth and what goes hand in hand with it—from insufficient supplies and having entrances open *full width*. I don't believe in such notions. It is cruel work anyhow. I close up to the size of a pencil's thickness in winter, and when breeding-time comes, with also hard frosty weather at that time, I close them up altogether, but open a six-inch square perforated zinc in the floor-board, upon which (the latter) is an additional three inches all round under the hive, raising that. Then, through the perforated zinc in the floor-board the warmth from the hot-water pipes, the temperature of the bee-house fifty to seventy degrees, enters direct into the body of the hive. My bees don't cluster this cold, frosty weather, they run all over the combs, yet in milder nights when I have no fire-heat, or when it does not freeze, they do, of course.

The hives in the bee-house are in three storeys, and twenty inches apart, nearly by the side of one another. The bees make no mistake in returning to the right entrances. To assist them I hang a branch, a flower-pot, or anything else here and there on the outside for a little guidance.

Last summer a second house was put up. I was obliged to face it to a six-foot high wire-netted fence, thickly entwined with creepers, which was close up, four inches from the entrances, but it gave the bees no trouble—in fact, I believe it was an assistance. In autumn this screen was removed. Next season it will not obstruct nor interfere.

Each bee-house costs 5*l.* complete with hot-water pipes, which are connected with the greenhouse boiler. A full description of it is in *B. B. J.*, page 164, April 3rd, 1890, where I referred to former letters with regard to my house apiaries and a new departure.—J. G. K., *Grove House, Southborough, Tunbridge Wells.*

THIN SINGLE-WALLED HIVES.

[483.] I was very pleased to see Mr. Wood's letter (475) on the above subject, and also the editorial comments upon it. However well the bees may winter in single-walled hives, I feel quite convinced from my own experience and observation that they will do better in the double-walled hives; but it is not in the winter that I think we derive the greatest advantage from the double-walled, but in the early spring and the summer, especially in swarming-time. I feel convinced that they have more to do with preventing undue swarming than all the dodges that have been tried for the purpose. When I first commenced bee-keeping I used single-walled hives made from one-inch board; but some three or four years ago, when so much was said about the double walls, I thought I would

try them, and so made three, which quite exceeded my expectations. I have made several more since them, and work them side by side with the single-walled ones, and the difference is very marked. In the early spring, with snow on the ground perhaps, a few wintry gleams of sunshine falling on the single walls will tempt the bees out by hundreds, many falling down to rise no more, while in the double-walled ones scarcely a bee will be moving. Only with a general rise in the temperature will there be any movement. Again, in hot weather the bees will be hanging out of the thin hives in a great cluster, while next door in the double hive not a bee will be lingering about. Indeed, even the children notice the difference, for when I have sent them down to watch in the swarming-time, the report when they come back is almost invariably that the little hives look like going. In the autumn, too, I have found the wasps and robbing not nearly so troublesome in the double as in the single walls. I expect the scent of the hive is less diffused; all I know is, it is so. I must apologise for trespassing so much on your space on such a well-worn subject; but I know it is a subject that exercises the minds of a great many amateur bee-keepers besides myself. I may add that I do not pack the space between the walls. Sometimes, if I have a little packing to spare, I put it in out of the way. My space is about two inches. I should be glad to see the results of others' observations of the summer working of double-walled hives. I expect, sirs, I, in common with many others, feel a kind of liking for the offspring of our own inventions. We feel 'to their virtues very kind, and to their faults a little blind.' Like John Walton, I should be very glad to hear from 'Amateur Expert,' whose motto adorns the apiary of the—VILLAGE BLACKSMITH.

APPLIANCE DEALERS.

[484.] In letter No. 471, p. 582, Mr. G. J. details a sad grievance: how he had been delayed twelve days in a wholesale order given to a dealer in early summer for sections, &c., and how he had been charged more for them than was advertised in the dealer's catalogue. It is hard for Mr. G. J. to complain through the *Bee Journal*, whose teachings, given only a short time previously, tell him how to escape the evils he complains of, and when the whole blame lay on his own inattention to those directions which, had he followed, he would have had no grievance.

Mr. 'Useful Hints' states, in your number of March 20th, p. 135, of those bee-keepers who send in their orders early that they 'save themselves much trouble and annoyance by obviating delay in getting what they want—a delay for which it is not fair to blame manufacturers, who are overdone for a few weeks with the requirements of people who have put off sending in their orders till the last available moment.' And again, on May 22nd, p. 243, we read: 'There are indications of a probable scarcity of two-inch wide sections this season, which readers who have delayed purchasing will do well to take note of. We already hear of dealers raising prices and refusing altogether to wholesale any.' These two extracts should constitute quite a sufficient answer to Mr. G. J., and I have no doubt that when he gives the matter a little further attention he will see that the dealer in question was doing all he could, under the circumstances, to serve him, and had acted as liberally towards him as it was possible to do in such a very exceptional season. I have now had bees in frame hives since autumn, 1883, and during those seven years have had business transactions with dealers in all parts of the kingdom, and never have had any difficulty in obtaining exactly what I required, and in good time: and if there is any bee-keeper dissatisfied with his dealer I can put him into communication with one of these who, I have no doubt, will serve him equally well; but my rule has been to order early, and his will have to be the same.—W. B., *Patrickswell, Co. Limerick.*

UNFINISHED SECTIONS.

[485.] When sending my first experiences in bee-keeping to the *B. B. J.*, I entered into a solemn contract with myself not to enter into or take any part in useless, senseless, and uncharitable controversies, which remind one more of the duelling of olden times than a friendly and courteous exchange of ideas, experiences, &c.

But for once am I sorely tempted to break my vow, in spite of seeing your usual editorial notice, 'Several letters, queries, &c., held over till next week for want of space.' Therefore, to be brief and to the point, let me say 'Cymro' (No 469) might as well read me right side up as wrong; the one was quite as easy to do as the other. In justice to myself, I ought to say that I was the first to give an impetus to bee-keeping in this village, and possibly in the surrounding neighbourhood too, having introduced the use of the frame hive, and at considerable expense and labour, and I freely gave my dearly bought experience for the benefit of others, until at the present time we have about thirty bar-frame hives in the village. Several other villages have also caught the fever from us, and have adopted the frame hive. Whilst I am blowing my own trumpet, let me also say that after not a little perseverance I have worked up a splendid market for honey, both at home and abroad, *i.e.*, in our own village and through various towns, &c., through England, Scotland, and Ireland; and though my bees give as good returns as most people's, the demand has always exceeded the supply. Letters are before me now asking for honey which I am quite unable to supply, having sent the last to Yorkshire a month ago.

I name all this because I want to ask 'Cymro' if he thinks it likely that, after eight or ten years labours in the various directions indicated, I am going to change my views and turn an enemy to our craft by altering my label and substituting the words 'Warranted pure sugar

syrup' for 'Warranted pure English honey?' No; I have too much respect for my own reputation, as well as for bee-keeping in general. I would now notice a few points in 'Cymro's' letter. I pass over what is, in my view, 'Cymro's' rather unkindly depreciation of the unselfish efforts of bee-keepers who contribute to your pages any small crust of good likely to be of service in helping to feed others, and in no way to profit themselves.

He mentions 'fixing a Canadian feeder at the back of dummy' (who ever said or thought of such a thing?), 'the bees having free access thereto, and also to the crate of sections in front.' This certainly is one of the wildest ideas I ever came across. My letter (No. 450) distinctly says 'take off sections, place on feeder.' How any one with ordinary intelligence can make this out to mean that the crate of unfinished sections and the feeder are to remain on the hive at one and the same time I am at a loss to conceive. But if that was not plain enough the next sentence ought make it clear. I say, 'If put on *the feeder* at six p.m. it might be removed in the morning *early*'—meaning five or six o'clock, anyway, before the bees began work for the day.

To quote from 'Cymro's' letter once more, for this, to my mind, is the climax of folly, unless he is jesting, to speak of 'putting ten or twenty pounds of syrup in feeder in order to get our sections completed.' No; we can sell our produce without indulging in dishonest practices. If the time ever comes that we fail to do so we will give up bee-keeping, except for our own table.

I am quite alive to the danger there would be to a novice working on the above plan, but that might be kept in check until some safe lines had been discovered through experience. Neither do I overlook the possibility of the bees carrying up the syrup out of the brood combs into the sections. But surely that propensity of the bees may be overcome if the principle itself is likely to be an advance and help to bee-keepers. There is, to my mind, more than one way out of that difficulty. But as I have trespassed to such an unpardonable length I must conclude for the present by tendering my sincere thanks to our Editors for the kind and courteous remarks in the footnote below No. 469's letter in protecting the character and honour of their correspondents, and also for reading my letter—as it was written—in the spirit of inquiry and desire to help others, and not to bring injury in any shape or form to the cause of bee-keeping.—J. W. BLANKLEY, *Denton, Lincolnshire, December 8th*, 1890.

APPLIANCE DEALERS AND CHEAP HIVES.

[486.] It is clear from the correspondence in your columns that appliance dealers cannot always be relied on, and that is confirmed by my own experience. To one appliance dealer I have twice sent an order, and both times I have regretted it; but with the others with whom I have dealt I have always been satisfied; and in one, I am glad to say, I have unbounded confidence, and his goods are always cheap and well made.

I know of a hive on which the clear profit is under one shilling. Would it not be better for 'G. J.' to get such a hive as this from a distance instead of getting one from his own part of the country at an 'exorbitant price?' He may get it in the flat, and save something on the carriage, and perhaps also in the price.

From a little I have seen recently of home-made hives, I am sure that very few cottagers can make hives properly with inferior tools; and as to frames, even those you buy are not always true. Sometimes the lower corner or one side sticks out more than on the other side, and the bees glue it to the hive side; or the frame does not hang true, and it is glued to the next frame. If cottagers would take my advice, they would buy a body box, with dummies and frames complete, from a good maker—say a W. B. C. body-box which they could get for about five shillings, perfect in every respect—and then they could make the floor-board and cover for themselves, and they could either use it as a single-walled hive or make it into a double-walled hive, as they may prefer. The inside of the hive would then be perfect, and that is the important part; and it must be remembered that even one-tenth of an inch error in inside measurement will spoil a hive, while the cover and outside are comparatively unimportant.

I should further suggest that County Associations should contract for the supply of body hives and frames in the flat, and sell them to members at cost price; and this, in my opinion, is the practical way of helping cottagers to obtain frame hives. These hives should have metal runners, and the Association should have a block to lend to members, to assist them in getting the hives perfectly square when they are nailed up.—T. F. L., *Brondesbury*.

LIQUID FRUIT SUGAR.

[487.] It is high time somebody spoke out amongst the laity (if I may so speak) of bee-keepers, against the insinuation of even the thin end of the wedge of what is really nothing but a temptation to sophistication. I am not plain enough. I should say: Every upright, honest bee-keeper should protest, wherever he gets a chance, against the use of a chemical and artificial substance being given to his bees which they might store in combs, and which an ignorant or dishonest man might try to foist on the public as 'honey.' I do not call it comb honey, extracted honey, or candied honey; I simply say 'honey,' for there is no honey in the round world that is not obtained from flowers by bees. I firmly believe that the introduction of this so-called liquid fruit sugar to bee-keepers (though honestly enough meant) is just one of the attempts we ought to resist with all our might, and protest against as vehemently as we possibly can, in the interests of the bee-

keeper himself in the first place, and in that of the public afterwards—for we intend to keep shut the mouths of those all-too-ready critics who would be up and at us in a moment with the tale that we 'manufactured' our honey. We will (I mean we who may be fortunate enough to possess any influence over others of the fraternity) prevent the use of any food being given to needy bees excepting pure cane sugar, as far as our pens and voices can prevent, and prevent the sale as 'honey' of anything not honestly obtained by the bee-keeper from his bees who obtain it from flowers, with all the force and influence we can command, fully believing that anything which is a temptation to fraud cannot be too strongly condemned at its inception. The makers or agents for the substance I, of course, freely acquit of any desire to deceive the public, but it is for us to take care that the eyes of the bee-keeper are opened to the danger there is before him. Once let the public know an artificial substance is fed to bees, the demand for honey is sure to go down, and the bee-keeper also will go down with it to the place prepared for him. Liquid fruit sugar sounds very attractive collectively, or split up as 'liquid fruit' and 'fruit sugar' (so does liquid amber), but with all its taking title, and even if it *were* liquefied sugar obtained from fruit, its use by the bee-keeper in any way would have to be discountenanced as opening a door which would probably lead to fraud: for we cannot hope that the temptation would always be resisted to feed it up to storing and sealing (and even selling) point. Thus, the public would think they were buying honey, and would buy a lie.

But I suspect it is our old friend, the enemy, Glucose. If so, not one word further need be said to any bee-keeper worthy of the name: he will give it as wide a berth as a certain gentleman is said to give to holy water. The proprietors may persist in pressing it on the notice of bee-keepers, but we also shall be equally persistent in warning them of the danger to the craft by using any fictitious compound whatever, be it glucose, liquid fruit sugar, or anything else of a like kind. Can we not string together one or two more seductive names—say, 'honified sucrose,' 'melliferous fruit juice,' 'sugared extract?' but no! all are bad in our eyes, for our very association together as British bee-keepers, we venture to think, is, or should be, a guarantee that everything we do is straightforward, genuine, and above suspicion.—R. A. H. GRIMSHAW.

HONEY COMPETITION.

We beg to acknowledge receipt of one guinea from Mr. J. D. McNally *re* above, which sum has been handed to the Secretary of the B.B.K.A. in accordance with the terms of Mr. McNally's communication of October 9th (*B.J.*, p. 489), and his further letter (No. 480) which appeared on p. 594 of our last issue.—EDS.

Queries and Replies.

[283.] *Queen cast out.*—Being a reader of both your valuable papers, the *B. B. J.* and the *Record*, and keeper of twenty stocks of bees, I thought I should like to ask your opinion concerning one of the said stocks. On the 14th of November (a bright and sunny day) I noticed one lot in particular very much excited, and on looking at them found the queen on the ground near the hive. I picked her up and held her in my warm hands a few minutes, then took off the hive top, turned back the corner of the quilt, and dropped her into the cluster. On the next day I found her again out on the ground and still alive, so I put her back in the same manner, and did so a third time, and still they turned her out. I may say it was a stock I had fed up. If you can explain their conduct I should be glad.—HY. COLLINS, *Berry Wood, Northants.*

REPLY.—There is no accounting for the way in which bees sometimes depose their queens as described, but when once cast out they very rarely can be induced to receive them back again. It is really a moot point whether the bees always depose and cast out the queen, or whether she, from having received some injury, elects to leave the hive of her own accord, just as a disabled worker will do; and though put back time after time, nothing will induce her to remain. Only in this way can we account for such incidents as you describe occurring in the depth of winter, and at a time when the bees cannot possibly raise a successor.

[284.] *Is it Dysentery?*—I have three stocks of bees near each other in my garden. This morning (10th instant) I noticed that bees were flying freely, and, upon going closer, found they proceeded from the centre hive, and that the alighting-board was covered with spots of a dirty yellow colour; I also saw many dead bees on the board. I enclose a few to help you, perhaps, in explaining the matter, and so oblige a a cottager bee-keeper, who unfortunately last year purchased six stocks of bees from a *gentleman*, and found them all diseased. That is my excuse for troubling you and for feeling a bit anxious new.—J. COLE, *Ivy Bridge, Devon.*

REPLY.—Unless the indications noticed were excessive there is no cause for alarm. Strong stocks, after being confined to their hives by cold weather, take advantage of the first fine day for a cleansing flight, and also to clear out any of their comrades which may have perished in the hive from age, &c. Copious specking or spots on alighting-boards indicates dysentery, but your case may be quite normal. The dead bees sent are not dysenteric.

[285.] *Protecting Skeps in Winter.*—I have a swarm of this year's bees in a skep from which I took nearly two supers of sections filled, or partly filled, with honey. Finding them over twenty pounds in weight at the beginning of October, I turned a box over them and placed

over it a roof or super cover. 1. Will this be warmth enough in case of sharp frost setting in? 2. On passing these the other day, I saw the alighting-board in front of entrance strewn with small pieces of comb. How is this to be accounted for? The entrance to the hive has been narrowed to about an inch by half an inch, or I should have thought it might be mice. Is this possible with so small an entrance, and if so, how can I best get rid of them?—D. EDSER, *Launceston.*

REPLY.—1. Quite sufficient protection. It is not so sure, however, that there is sufficient food in the hive; twenty pounds including, as we suppose, hives, bees, combs and food, is cutting the supply down too fine, and it will be wise to give a cake of soft candy above the feed-hole, covering it with some warm protective material. 2. The chippings of wax indicate that the bees have been drawing on the sealed stores, and are another evidence of a short supply of winter stores.

[286.] *Artificial Swarming.*—1. If my two stocks of bees survive this severe weather, and come out fairly strong in spring, would you advise dividing them into three or not, as, being away from home all day, I wish to avoid probable loss of bees by swarming? 2. In cleaning hives next spring, would it be right to bodily transfer frames and bees to new hive, and, if so, should all the hives be painted same colour? 3. Am preparing a third hive; will a fourth be necessary?—BRITAIN CHARLES WHITFIELD, *Fishponds, Gloucestershire.*

REPLY.—1. Though we do not *advise* artificial swarming for all and sundry, and prefer natural swarms, it is very useful under such circumstances as yours; and, if not practised too early, is quite safe and simple when carried out under proper conditions—say, making three colonies from two, as you propose. 2. Yes, but it is not absolutely necessary to do so. 3. It is safer to have a fourth hive in case of a swarm coming off unexpectedly.

Notices to Correspondents and Inquirers.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

J. WICKS.—The cutting sent is Borage, a well-known bee-plant. It is an annual, and sows itself. However it chanced to get into the neighbourhood of your hives it is impossible to say, but it is quite certain that your idea of the bees carrying the seed cannot be correct.

P. P. (Havant).—The information asked for has been unavoidably delayed, but will probably appear in our next.

THE

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Editorial, Notices, &c.

USEFUL HINTS.

It has just occurred to us that this, the final issue of the *Bee Journal* for the year 1890 will (or should) reach the hands of our readers on the eve of Christmas Day. Now, who, we may well ask, will consider *our* 'Hints' worth reading on such an occasion as that? Who thinks of bees when the time-honoured 'pudding' is actually boiling in the pot, and thoughts of to-morrow concern Christmas joys indoors? No, we do not flatter ourselves that one bee-keeper in a hundred will care one jot what 'Mr. Useful Hints,' or any one else may have to say about bees at such a time, and so, out of consideration and seasonable forethought (for our readers, of course) we avail ourselves of the opportunity for including the Index for the year in this number, in order—to use a vulgar phrase—to 'cut it short.'

At the same time, we may observe that in the present condition of the weather, when the snow lies many inches deep on the ground, and the thermometer registers ten degrees of frost, the most 'useful hint' we can offer readers concerning things apicultural is to 'stay indoors and enjoy yourselves, and leave the bees alone.' When a thaw comes it will be time enough to scrape away the melting snow from hives; meanwhile let them remain buried in the snow, if that be their condition, so long as the present sunless and intense cold lasts.

Onlookers have ere now stared in some wonderment at us throwing a shovelful of loose snow across the doorways of each of our hives to keep out the bitter east wind, at a time when they (the onlookers) had just been carefully removing all snow from entrances to their own hives 'in order to give the bees air,' which was quite unnecessary, for we are glad to give the assurance that bees are best left entirely alone at such a severe time as we are now having, and that all interference with well-prepared stocks will do ten times more harm than good.

The frost continues with unabated intensity, and has now extended northward. In some places we hear of drifted snow covering the ground to a depth of ten or twelve feet, completely embedding hives and bees and causing serious alarm on the part of bee-keepers inexperienced in such contingencies. There is no danger, however, of suffocation, as some suppose, but only where the melting snow finds its way into the hives when a thaw comes will any mischief follow; beyond this, to be snowed up in such a winter is rather an advantage than otherwise.

We cannot say our final word for the year now so nearly ended to readers of the *Bee Journal* without expressing very hearty thanks to all who have helped to make its pages interesting and instructive to those for whom we labour. As concerns writers, and readers, and ourselves, obviously their cause is our cause, and their success means ours too. According to established precedents, we may, from the bee-keepers' point of view, welcome the hard winter we are having as the forerunner of a fine summer next year, and so we shall close by wishing that precedent may be verified, and to all good health and a happy Christmas-tide.

BEE-PAPERS FOR WINTER READING.

The first of these papers will appear in our next issue, and will be entitled 'Handling Bees.'

We would also remind Subscribers that as the issue of the *Bee Journal* for 1891 will extend to fifty-three weekly numbers, the subscription for that year will be 6*s.* 7½*d.*

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee meeting, held at 105 Jermyn Street on Tuesday, December 16th. Present: T. W. Cowan (in the chair), Hon. and Rev. H. Bligh, J. Garratt, H. Jonas, R. T. Andrews, Captain Campbell, W. O'B. Glennie (treasurer), and the Secretary. Letters were read from Captain Bush, R.N., and Mr. W. L. McClure, regretting their inability to be present. The minutes of the last committee meeting were read and confirmed. On the recommendation of the Finance Committee it was resolved to issue a second edition of the pamphlet, *The Chemistry of the Hive*. On the motion of the Treasurer, it was resolved that the accounts from December 15th–31st be examined by the Finance Committee previous to the accounts for the year being placed in the auditors' hands. The Secretary reported that he had communicated with the Bristol Association in reference to the Bath and West of England Agricultural Show, to be held at Bath in June next, but had not yet received their reply.

A letter was read from the Royal Agricultural Society intimating that the prize-list for the bee department of the Doncaster Exhibition had been duly passed by the Council. Resolved that the same be published in the *Bee Journal* on an early date.

REVIEW.

The Honey Bee: its Natural History, Anatomy, and Physiology. By T. W. Cowan, F.L.S., F.G.S., F.R.M.S., &c. (London: Houlston & Sons, Paternoster Square.)—This book, the latest contribution to high-class bee literature, comes to hand at a peculiarly happy time – the bee-keeper's holiday—when with feet on fender, and surrounded by the creature-comforts accompanying this festive season, he can, more than at any other season, lay himself open to steady reading and the acquisition of knowledge. 'It is in literature as in finance, much poverty and much paper may co-exist,' and this truism surely applies with great force to the bee-books of the past, in which there are grains of undoubted truth mixed with a vast quantity of unmistakable chaff, which, at the time it was written, might perhaps pass muster in dim light as true science. To take the whole literature on the science of bee-life, written by numerous authors in English, French, German, Italian, and Russian, and sift from these all their germs of knowledge, to lay 172 writers under contribution and marshal all that is worth knowing of their works in a straightforward, simple, and compact array, is a task of almost Herculean mental magnitude; yet this has been attempted by the author and accomplished by him in such a manner that I have not any hesitation in pronouncing it far and away the finest book, the one containing the most true knowledge, yet published on the life-history of the honey-bee, and I confidently challenge criticism in giving this opinion.

The book is eminently handy, of a size and weight that can be held with comfort whilst perusing its pages; the paper, of a light cream colour, is firm to the touch, and of such remarkable smoothness that it lends itself to the perfect reproduction of 136 illustrations with the fidelity of photography; the letterpress is clear and distinct, so that the eye does not become tired by its perusal. I have carefully read the work, not in a reviewing spirit, but in my most critical mood, searching for error of any kind, and its perfectness now shows me why it was that our eagerness for its publication remained so long ungratified. Mr. Cowan had apparently determined to disarm criticism beforehand, by so checking his work over again and again, that error, even if it had crept in, could not possibly remain.

The first thing that strikes the reader of the book is the exquisite simplicity of the author's diction; the language is delightfully pure, plain Anglo-Saxon, strongly reminding one of John Bright's English, easily understanded of the people. The most unlettered bee-keeper (who can read at all) may grasp the whole question of the anatomy and physiology of the bee by reading this book, with as much ease as characterised his obtaining a knowledge of practical bee-keeping from Mr. Cowan's previous works on this subject.

Every fact obtained from other men's writings is honestly acknowledged by mentioning the author's name every time, and a number, in brackets, is given, which upon reference to an index at the end of the volume enables us to identify the work from which it is extracted. For example: 'P. 49, Macloskie (105), who has studied the internal skeleton,' &c., &c. No. 105, in the index then says: '105, Macloskie, G. The endocranium and maxillary suspensorium of the bee (*Amer. Natural.*, pp. 567–73), 1884;' and so on through the whole book. Again, whenever the author uses scientific terms (and such are indispensable in a work of this kind) he enables the bee-keeper, of no matter how limited education, to understand and follow him, by splitting up and explaining such terms, thus: 'P. 2, We find our insect belongs to the order of Hymenoptera (Gr, *humen*, a membrane; *pteron*, a wing).' And, again, p. 49, this method is reversed for the benefit of the reader: 'From these outgrowths descend pillars (called mesocephalic).' P. 107, 'At the bottom of the honey-sac is situated what Burmeister (17) has called the stomach-mouth (*magenmund*).'

A considerable amount of the information contained in the volume before me is, of course, the direct discovery and observation of the author himself, and is both 'new and true' to those who read his work for the first time; but with characteristic modesty the writer refrains from taking credit to himself in his own words, making himself conspicuous by contrast with other writers who have not scrupled to use both illustrations and verbatim letterpress, taken bodily from the literary coffins of previous authors, with neither a 'by your leave,' nor any

acknowledgment of any kind; the admiring reader, meanwhile, in his enforced ignorance, crediting the compiler with discoveries to which he was not entitled.

Mr. Cowan, in his illustrations, has indeed surpassed himself, for, being a skilled microscopist and photographer, he has been enabled to take micro-photographs of complicated and hitherto obscure parts of the organs of the honey-bee, and these have been reproduced in the book so accurately that a hand magnifying-glass is necessary to thoroughly appreciate their minutiæ. Altogether the work is a masterpiece of painstaking accurate compilation and discovery, rendered intensely interesting by simplicity of style, and will rank in the future as a classic amongst bee-books. Born in Russia, and having resided for long periods in different parts of the Continent, besides being personally acquainted with most of the foremost British, Continental, and American scientists in bee-lore, familar with the German, French, Russian, Italian, Latin, and I don't know how many other languages, no living man in my opinion is so capable of fulfilling the immense task so well accomplished, and I think every bee-keeper should set store by the new book, which even at this early stage of its life is being translated into French and German.—R. A. H. GRIMSHAW.

Correspondence.

The Editors do not hold themselves responsible for the opinions expressed by correspondents. No notice will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITORS of the "British Bee Journal," 17 *King William Street, Strand, London, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (*see 1st page of Advertisements*).

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

NOTES BY THE WAY.

[483.] *Double and Single-walled Hives.*—I am not in a position to decide by any extended experience in the above, as all my hives have double walls. Some years back I had a few single-walled hives in use, but considered the bees in the hives with double walls came out best, and built up stronger in the spring. I either converted the single into double, or discarded them altogether in favour of double walls. Mr. Wood's letter (475) is certainly a strong plea for single walls, and so also is the following for double walls from Mr. F. Cheshire's *Bees and Bee-keeping*, vol. ii., page 521:—'Some years since I made experiments on hive walls. I took a number of tin chambers, each holding twelve ounces of water. After filling with water at 200°, they were placed in boxes representing different descriptions of hive sides, all of which had been before carefully brought to a uniform temperature, and then the time occupied by each in falling through a certain number of degrees was noted. For this very delicate thermometers were used, and the calculations based on Newton's law of cooling. The following results were made clear:—If a hive side of $\frac{8}{8}$-inch pine have its protective power represented by one, that of a double side, with one inch dead (?) air-space would equal four, while the same wooden sides, packed tightly with chaff, would equal ten. . . . . Further experiments proved that cork-dust in lieu of the chaff-packing gave a nonconductivity to be represented by *fourteen*.' Thus experiments carefully conducted show at once the protection secured by double walls packed with cork-dust as being in the ratio of fourteen to one, and if bees really require protection during the winter months it appears the double-walled hives give far greater protection than hives with single walls. Our brethren in the craft on the unlimited (?) side of the Atlantic in the colder zones carefully store their bees from November till March or April in cellars or bee-caves. Those who neglect doing so in severe winters lose a very large percentage of their stocks.

Packing Sections.—I notice Mr. Blankley (No. 438) advises packing hay between each section of honey. Now, having had considerable experience in packing honey in the comb and with very few breakages—not one section per 1000—I would advise bee-keepers to tie up their sections in parcels (say half-dozens, or at most one dozens) in brown paper, and pack in hay in a case that admits of, say, one to two inches of hay all round, and if a large number of sections are ordered at one time (say a gross) don't pack more than six dozen in one case (and always put a cord handle at each end of the case to lift by); better a less number, say four dozen in each case, as railway porters are not all 'Samsons,' and breakages will occur in large cases more frequently than in smaller and easily handled ones. The parcel of sections tied in brown paper, when lifted out of the hay and untied on the grocer's counter or on the kitchen table of the purchaser, charms him at once by the nice, clean, presentable appearance, and repeat orders come in thick and fast. I have a customer in London who is prepared to take every section of honey I can spare next year. Why is that? I will tell you what he says: 'I cannot get any such honey as yours, and put up in such a presentable form, from any other source. I was so disgusted with the small parcels of honey sent in last year after you had run out that I almost decided not to handle honey again.' There's the secret, friends. Put your honey up in a marketable shape, so that when you pass the stores, and see your sections on sale in the window, you may be proud of its neat and clean appearance.

Christmas Cards.—I have seen many times on Christmas cards the old-fashioned straw skep or beehive figuring amongst the illustrations, but never in a single instance the modern

frame hive, loaded with snow. On more than one occasion I have wished for a 'Kodak' so that I could snap a view of my apiary when the the rows of hives have been laden with snow, and have taken friends to see the unique vision of a snow-laden apiary. I am sure the view would inspire the lovers of the beautiful in Nature with enthusiasm if they could share in the view.

Yes, friend Walton, my bees, 'ye olde English bee,' stings sometimes, but experience —aye, *painful* experience—teaches me that the temper of the bee is very subject to atmospheric influence. Some days one can do almost anything with the hives and contents without resentment from the inmates, while another day the same colony will be on the alert for war, even if the cover of the hive only is raised. Last spring I bought an apiary of bees, and as I wanted the stocks for my out-apiary within half a mile of where the hives I bought stood, I first brought them to my apiary at home, and whether it was the shake up they got in a two-mile journey in a spring cart or not, I know they were very spiteful for a week or two—no one dared go into the garden near them unless protected with a veil; but after the first fortnight I had no further trouble, and they became as quiet as any other colonies in the apiary.

Wax-moth in Spare Combs in Frames and Sections.—We (that is my wife and I) have looked through our stock of combs during the past week to see if the larva of the wax-moth had commenced its ravages in the combs. We found only a few with the creatures eating their sinuous passage through the combs, and as we passed the sections from crate to crate for examination, we placed dividers between the sections and wedged up all ready for the hives another May and June, feeling sure that if the moth has not shown itself by this period of the year it could not be there. To those bee-keepers who have spare combs, I would say do likewise on the first opportunity.

Another Suggestion.—Other periodicals have their Christmas numbers, why not the *British Bee Journal* have its Christmas number also, in the preparation of which our editor could, as the year flows on, jot down all the new methods, &c., as wished by 'Holderness,' all the *bon-mots* of 'Honeysuckle,' and possibly hold a stereotype of the selected articles ready for printing it off, while the bulky, long-winded ones could be boiled down, and thus form a *busy* bee-keepers' *vade mecum* of the yearly volume? A merry Christmas to each and every bee-keeper, and whether the Yule log is blazing away on the old-fashioned hearth of the country house, around which the festive gathering is being held, or pent up within the smaller dimension of the modern stove in the suburbs of the town, I extend the same hearty good-will to all—a merry Christmas, friends. Our next number will appear at the entrance of the new year, and the beginning of the last decade of this century. To those of us who have continued in the wake of its teachings during the past decade have seen good seasons and bad seasons follow in succession. We have lost many of its old and valued contributors, and the *Journal* itself has during that time seen many changes. In 1880 its destinies were guided by that veteran of bee-craft, Mr. C. N. Abbott, and the price 6*d.* for a monthly journal. I well remember how its coming was anticipated. Then came afterwards to hand a bi-monthly at 3*d.*, and later on as a weekly at 2*d.*, and now in its present form at 1*d.* weekly. Truly, the novice in bee-keeping in 1891 has a better start than the novice in 1881. Then, if he wanted advice he had to wait a whole month, now he gets it in a week.—W. Woodley, *World's End, Newbury.*

A NATIONAL HONEY COMPETITION WANTED.

[489.] About the beginning of this year I ventured to pen a few lines on the above subject in the columns of the *Bee Journal*, with the hope that during the season 1890 some steps might be taken to bring about a national honey competition. The year is now at a close, and the suggestion which I then offered has been untried.

Referring to the correspondence lately in the *Journal* on the subject of challenging and honey shows generally, there is sufficient evidence to indicate that such a proposal is certain of support from bee-keepers throughout the United Kingdom. The discussion thereon enlisted correspondence from bee-keepers representing England, Ireland, and Scotland, some of whom, if not all, are well known as prize-winners, and who signified their willingness to engage in a national contest if conducted on fair and square lines. Now that the season of 1891 is close at hand, I think such a proposal should be set agoing early in the year, so that all who desire to compete may be in readiness. As I have before mentioned, this competition, to be fairly representative of all classes, and in order to become a success, should be under the auspices of the British Bee-keepers' Association, which, from long experience, and knowing the wants and wishes of the craft, would be sufficient guarantee that this arrangement would be carried out to the satisfaction of all. Granting that this body be encouraged to take up the matter, I may here repeat how I consider the competition can be managed without risk or loss to any one, except the unsuccessful competitors—a very important point amongst all classes, for it is a fact that few people, bee-keepers included, care to risk a shilling unless they happen to see 1*s.* 4*d.* at the other end. The competition to take place in London about the beginning of September, in the form of two sweepstake classes; one class a jar of pure clover honey, and one class a jar of pure heather honey. Each exhibitor to pay an entry fee of, say, 2*s.* 6*d.* per entry. The number of entries would thus determine the value of the prize-money, which may be four or six prizes in each class. All the

honey to be shown in jars exactly similar, free from any private mark. The exhibits to be forwarded to London, carriage paid, and all the honey sent to be forfeited to the British B.K.A., who from the proceeds of its sale would defray all the expenses of superintending, judging, and other work connected with the competition. Judges to be appointed representing the three nationalities.

In a fairly good season it might be safe to predict there would be not less than 500 entries —a good day's work for the judges to tackle. Such an exhibit would be sure to bring out many enthusiasts to see the best that Britain could produce.

Having previously written on this subject, I have nothing further to add, but will be pleased to hear the opinions of others, so that if favourably received, the executive of the British B. K. A. might be urged to take action without delay.—W. McNally, *Glenluce, Scotland.*

THE DEPOSIT SYSTEM.

[490.] I am very glad to see you are taking up this matter, but, with all respect, I think your Rule 6 is an error. The law says that goods are sent at buyer's risk if he pays carriage, the carrier is his servant, and is responsible to him. I can see no object in making the seller responsible. He would have no remedy against the carrier if the goods were accepted; whereas the buyer would have his remedy against him by your rules. The carrier, moreover, is on the spot to actually inspect damaged goods and to settle the dispute, but the seller may be hundreds of miles away.—H. R. Marshall, *Barnham.*

[We thank our correspondent for drawing attention to Rule 6, and will have the matter looked into.—Eds.]

KEEPING BEES WARM.

[491.] I fully sympathise with your correspondent (page 604, No. 482) in his efforts to keep his bees warm in this bitter weather, and I hope he will gives us in the spring the benefit of his experience, but I would myself hardly venture to try his plan.

The Editor of the *Bee-keepers' Guide*, in his first edition, writes under the head of 'Winter Management,'—'Disturb the bees as little as possible.'

The natural course for bees in winter is to cluster, and by that means they keep one another warm. In that state they consume very little food, and there is far less necessity for them to take cleansing flights. As the food in the vicinity of the cluster gets scarce, the cluster moves slowly and bodily to fresh food, but if the bees are unnaturally heated and in that way disturbed, they no doubt follow the course your correspondent tells us they do: 'They do not cluster in this cold frosty weather, but run about the combs.' The result of that will be that they eat, and to keep the hives clean and the bees healthy they must get out. Your correspondent shuts the door; but even if they did get out they would most probably be chilled and never return. If I might venture to give an opinion I would say, Keep the bees warm, but not so warm as to break the cluster, unless the outside heat is such that they can get out, and do not shut them up so that they cannot get out. There are times when the weather about a hive is warmer than we expect, and the bees will most certainly take advantage of it to get cleansing flights, and I have often noticed dead bees lying on my alighting-boards, which have been brought out when I would not have expected it.—A Bee-keeper Past and Present.

PREVENTING SWARMING IN OUT-APIARIES.

[492.] An out-apiary should be run for extracted honey, because we can by proper management reduce swarming so that swarms which may come off will not pay for the extra expense of engaging some one to watch the bees. This expense feels very heavy should it prove to be a poor season for honey. The gain derived from the production of comb honey, in Canada at least, does not cover the expense of hiring a man to watch swarming. A man who will make a success of an apiary is expensive and not easily fouud, especially the same man year after year, as he will soon start for himself. That we can keep down swarming almost entirely in the production of comb honey few, if any, will claim. There are, however, a few who will claim they can do it with extracted honey. By accident I have for years practised the system of tiering up with colonies which did the best for me. I mean that my attention would be drawn to a colony doing remarkably well, and to such a one I would give plenty of room, shade it and ventilate at the top, and by so doing I not only prevented it *generally* from swarming, but I obtained excellent results. The reason for this I will not here enlarge upon. Never, until this fall, however, did I really become convinced that an out-apiary, or any apiary, could be managed without some one to watch for swarms. C. W. Post, of Murray, is a specialist with over 300 colonies, and manages with one of his sons. He has swarming so much under control that he cannot afford to have a man in the apiary. He ventilates by means of a hole in the bottom board and a corresponding hole in the honey board. He shades and tiers up two and even three supers high, and runs for extracted honey. Another system Mr. Post works on is to have upon a post, to revolve, four arms like a cross. Upon each arm, in the spring, a swarm of bees is set, and each day the cross is given a quarter-turn. This gives the old bees a new hive each day they fly, and, Mr. Post claims, prevents swarming if reasonable room is given them.—R. F. Holterman, *Romney, Canada.—Bee-keepers' Review.*

Queries and Replies.

[287.] *Bees and Complaining Neighbours.*—I should be glad if some of your readers would let me know through the columns of the *B. J.* whether a neighbour has *legal* cause of complaint against any one keeping bees in the ordinary course, and if so, on what grounds? I have been keeping bees for a few years, and have just come to live in a terrace, with houses on both sides. There is a garden at the back of the house, about fifteen or twenty yards long, at the end of which the bees are kept. I should therefore like to know—1. In the event of any complaint being made, exactly what grounds I have to stand upon? Also—2. In case of them swarming in a neighbour's garden, &c.? 3. May I suggest that you start a column in your *Journal* exclusively for Welsh notes, &c.? The advantage of this I think would be that people, say, in Wales, wanting advice on any particular subject, would know from these, supposing names are appended, as I hope they would be, who best to write to, or in many cases would give them a personal call and have many good bits of advice. Thanking you in anticipation—JOHN CLARK, 1 *Roseland Terrace, Mumbles, near Swansea, December* 16*th*, 1890.

REPLY.—1. If the bees can be proved to be a nuisance and a source of danger to the neighbours they may compel you to remove them—this is but just and reasonable, as all must admit; but so long as they are managed carefully and with the necessary consideration for others, there is no reason why bees may not be kept without any grounds for complaint, legal or otherwise. 2. The owner can claim a right to follow a swarm, but may be compelled to make good any damage done in recovering it. 3. We should be glad at any time to have 'notes' from different districts, and the 'Echo' column in some measure meets the suggestion of our correspondent; but for general information and advice on bee-matters, it is not, we hope, too much to say that most readers prefer to seek the help of the Editors, so long as the query and reply column is available.

[288.] *Packing Sections—Drone Traps.*—1. Which is the best way to pack sections of comb honey for travelling by rail, and how many should be packed in a single box? 2. Are drone traps made from queen-excluder zinc? When placed at a hive entrance to catch the drones, are these traps not a hindrance to the labours of the worker-bees, especially when laden with pollen?—J. J. K., *Appleby.*

REPLY.—1. Read what is said by Mr. Wm. Woodley on p. 611 as to packing sections. He should know a good deal on the subject. From two to three dozen sections are enough to pack in one box. The main point in sending sections of comb honey by rail is to risk none, no matter how carefully packed, in which the comb is not attached to the wood on three sides, and, if possible, also on the fourth. 2. Partly so, and partly of wood. 3. The use of drone traps is now a thing of the past. Allow only a small quantity of drone comb in the hives, and save the trouble of trapping them; besides, it does seriously obstruct the working bees when traps are used.

[289.] I see in answer to Query No. 259, on page 540 of the *B. J.* you say, 'If you adopt the plan recommended be careful to procure a suitable sugar.' Will you kindly tell me the name of the sugar you consider most suitable for that purpose, also if it would be wise to put it on as soon as the weather permits, where one is doubtful as to there being a plentiful supply of food, in the place of *candy*?—J. B., *December 8th.*

REPLY.—Porto Rico sugar is considered best for the purpose, but only moist sugar will answer.

Echoes from the Hives.

Fairspeir, Ascott-sub-Wychwood, Oxford, December 16*th*, 1890.—The past summer has been with me, as far as bees are concerned, only a moderate one. We had a few warm days at the commencement of June, but rain followed continuously, and also through July. August was better, but we get no honey in that month. However, I secured an average of twenty-five pounds per hive, which against seventy-six pounds last year per hive, was only moderate. I was not bothered much with swarming, because I work my hives on the tiering system, though the wet season caused prolific breeding, too. As to winter stores, feeding, &c., I find it the easiest and simplest plan to leave each stock with twenty-five pounds of stores in the autumn. When February comes, I take advantage of the first mild day to examine and put a five-pound cake of candy on top of each. This ensures their having sufficient food to last till the honey flow, added to which, taking down the candy encourages breeding. Of course slow syrup-feeding is better, but this must be done regularly, and giving say twenty-five stocks half a pint of warm syrup every night for a month or six weeks is no slight matter. Hence I prefer the cake of candy instead, though I believe the bees will increase faster with the syrup treatment. So I should advise syrup spring feeding to those who have the time, and candy for those who haven't.—APIARIST.

Notices to Correspondents and Inquirers.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

A COTTAGER (Talywain, near Pontypool.)—Full particulars of how to make *soft candy* are given in *Bee Journal* for October 23rd (p. 514.)

*** *Several articles are in type, but owing to space taken up by the Index, are held over till next week.*