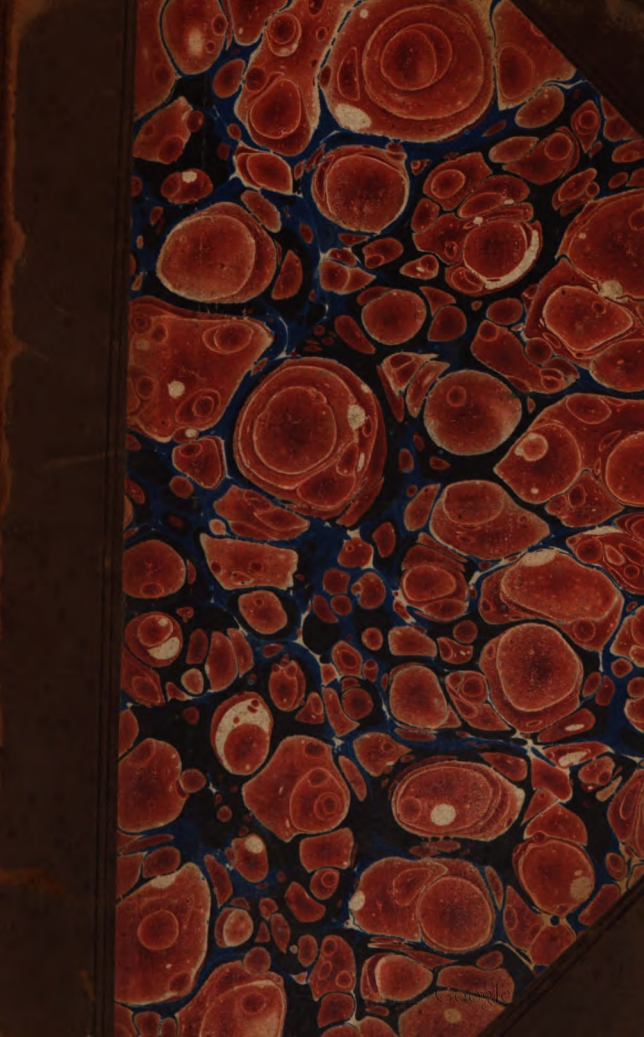

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AN

INTRODUCTION

TO

MEDICAL BOTANY.

ILLUSTRATED WITH COLOURED FIGURES.

BY

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TO

SIR WILLIAM BLIZARD, KNT. F.R.S.

ETC. ETC.

THIS HUMBLE PRODUCTION

ILLUSTRATIVE OF MEDICAL BOTANY,

IS, BY PERMISSION,

VERY FAITHFULLY INSCRIBED,

IN TESTIMONY OF HIS FRIENDLY DESIRE

AT ALL TIMES TO PROMOTE

THE AUTHOR'S

LITERARY AND PROFESSIONAL

VIEWS.

PREFACE.

THE little volume which is now ushered into the presence of the Medical Public, is not one of considerable importance or research; it is a mere outline of the subject on which it treats; and is only offered to the notice of students, as affording a simple introduction to those points which are essential in the study of medicinal plants.

Botany, independent of its being a necessary branch of Medical Education, is calculated to amuse and to instruct. But when it is pursued with the view of ascertaining means of relief for the suffering evils of mortality, then it holds a superior claim on our attention, and requires to be classed, in common with the sister sciences, as tending to the same considerate and benevolent end.

Throughout the following pages, utility and conciseness have been attempted, and as far as the study is connected with professional knowledge, it is confidently hoped sufficient has been given, to make familiar, the principles of the science, and to display their especial application to medical purposes.

T. C.

38, Bermondsey Square,
September 5th 1829.

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THE

ELEMENTS OF BOTANY.

SECTION I.

ON PLANTS IN GENERAL.—THE DIVISION OF PLANTS INTO ÆLEMENTARY ORGANS.—GENERAL REMARKS ON THE ROOT, STEM AND LEAF.

ON PLANTS.

All vegetables will admit of a natural division into three kinds, viz. *trees, shrubs* and *herbs.*

Trees :—Trees are the largest and most noble specimens. They are usually defined as having a single stem, from whence are sent out numerous branches.

Quercus Robur, Laurus Nobilis, Prunus Domestica, Amygdalus Communis, Æsculus Hippocastanum, &c.

Shrubs :—Shrubs are lesser productions than

trees, and instead of one single trunk, they have several.

Daphne Mezereum, Rosa Canina, Juniperus Communis, Rosmarinus Officinalis, Spartium Scoparium, &c.

Herbs :—Herbs are those plants, whose stalks die away every year.

Avena Sativa, Leontodon Taraxacum, Daucus Carota, Papaver Somniferum, &c.

From the local situation or attachment of plants, they are denominated *terrestrial, aquatic,* or *parasitical.*

Terrestrial :—When their roots are placed in the ground, as with most plants.

Aquatic:- When the plant grows in water.

Parasitical :—When it is attached to another plant or substance, not earth.

The Lichen Islandicus and Boletus Ignarius, are parasitical plants.

The duration or length of time which plants

live, are distinguished by the appropriate terms *annual, biennial* and *perennial.*

Annuals:—When they last but one year; that is, come up in the spring and die in the autumn.

Hordeum Distichon, Triticum Hybernum, Nicotiana Tabacum, Anethum Graveolens, Conium Maculatum, &c.

Biennials:—Are those which produce seed the second year after their being raised, and then die.

Daucus Carota, Allium Porrum, Angelica Archangelica, Apium Petroselinum, Lactusa Sativa, &c.

Perennials:—When they last for more than two years.

Crocus Sativus, Dorstenia Contrayerva, Anethum Fœniculum, and most plants.

PARTS OF A PLANT.

The more perfect plants, are constantly described, as consisting of five principal parts, viz. the *root*, the *stem*, the *leaf*, the *flower*, and the *seed* or *fruit.*

OF THE ROOT.

The root is that part of the plant by which it

attaches itself to the earth, or to the substance on which it feeds, and is the principal organ of nutrition.

The most common varieties to be met with in medical plants are the *ramose*, the *fibrous*, the *bulbous*, the *tuberous*, and the *spindle-shaped*. To these, in general botany, is added, the *bitten* or *truncated*.

Ramose:—The ramose or branched root, is a very common species, being that of most trees and shrubs.

Morus Nigra, Amygdalus Communis, Rosa Centifolia, Æsculus Hippocastanum, &c. (F. 21.)

Fibrous:—The *fibrous* or *capillary* root, consists of a number of small and thread-like fibres, one of which is generally central and the rest lateral.

The Hordeum Distichon, Avena Sativa, and most annual plants have this kind of root. (F. 22.)

Bulbous:—Bulbous roots are those which consist of one globe or head, from the under-surface of which, many fibres descend.

They are of three kinds. In the Crocus Sativus (F. 23.) solid; in the Scilla Maritima (F. 24.) scaly; and in the Allium Cepa, coated.

Tuberous:—A tuberous root is formed of a knob or tubercle, furnished with a number of small or scattered fibres; or of a number of knobs or tubercles united by means of such fibres, and forming clusters.

The Acorus Calamus and the Saxifraga Alba, have tuberous roots.

Spindle:—The spindle-shaped or fusiform root, tapers gradually from the top to the extremity.

This is the case in the Leontodon Taraxacum, Daucus Carota, and many others. (F. 25.)

Truncated:—If a root bears the appearance of a fusiform root, suddenly cut off, it is then termed a *truncated* or *bitten* root.

Whatever may be the form of the root, it is botanically divided into two parts, the *caudex* or great root; and the *radiculæ* or rootlets.

The latter are represented by (b. b.) in the 23d Figure, and the former by the letter (a.)

The *rootlets* or *fibres* are the essential organs by which absorption of nutriment is effected;

and the *caudex* or *main root*, is the medium of communication to the other parts of the plant.

OF THE STEM.

The stem is that part of a plant which supports the herbage or fructification.

There are six sets of stems; viz. *trunks*, *stalks*, *straws*, *scapes*, *fronds* and *stipes*.

Trunk:—A trunk is the proper stem of trees and shrubs, and is characterized by its height, size and woody structure.

Quercus Robur, Ulmus Campestris, Æsculus Hippocastanum, Morus Nigra, Prunus Domestica, &c.

Stalks:—The stems of herbaceous plants are called stalks. They are rarely woody, and live but for one or two years in the natural state of the plant.

Glycyrrhiza Glabra, Cochlearia Armoracia, and so on.

Straws:—Straws are the peculiar stems of grasses, rushes and other similar plants. They are either hollow or partially filled with pith, and

generally divided into compartments by a species of knot or joint.

Avena Sativa, Hordeum Distichon, Triticum Hybernum, &c.

Scape:—A scape is that kind of stem, which arises from the root and supports the flower, but not the leaf.

Leontodon Taraxacum, Aloe Perfoliata, Anthemis Nobilis, Colchicum Autumnale, &c.

Frond:—The frond is that species in which the stem, leaf, and fructification are united; or in other words, the flowers and fruit are produced from the leaf itself.

Exemplified in the Aspidium Filix Mas, and Lichen Islandicus.

Stipe:—The word stipe, is used to express the stem of palms, ferns, fuci and fungi. They are generally cylindrical, but sometimes swollen in the middle, and bear a frond, or peculiar foliage at their summit.

In addition to the use of stems in supporting the herbage and fructification, they consist of a number of fine capillary tubes, through

which, during the time of growth, sap is carried from the root throughout the whole plant.

OF THE LEAF.

The leaf is usually the temporary part of the plant; generally of a thin and flat substance, of a green colour, and issuing from the stem and branches, or immediately from the root.

Most leaves are said to consist of two parts; viz. a small stalk or *petiole* and an *expansion* or broad part supported by the petiole.

The *petiole* is illustrated by the letter b in F. 26, and the *expansion* by the letter a.

Leaves are either situated *close* to the stem, branch or root from whence they proceed; or they are *supported* on a partial stem, called the *petiole* or leaf-stalk.

In the first case, as with the Crocus Sativus, Amomum Cardamomum, Saccharum Officinarum, they are said to be *sessile*; and with the latter, as in the Convolvulus Jalapa Capsicum Annuum, Vitis Vinifera and most plants, *petiolate*.

Leaves are also either *simple* or *compound*.

Simple:—When they consist of but one single expansion.

As in the Ulmus Campestris, Rumex Acetosa, Daphne Mezereum, &c. (F. 26.)

Compound:—When, instead of one expansion, there are several.

As in the the Rosa Centifolia, Æsculus Hippocastanum, Ruta Graveolens, and so on. (F. 27.)

The separate expansions of a compound leaf are called *pinnæ* or *leaflets*.

Thus the Rosa Centifolia is said to have a compound leaf with *six* pinnæ and a terminal leaflet making *seven*.

There is an infinite variety of leaves; the most common of which, are the linear, sagittate, and others, as explained in the terminalogy.

The chief use of the leaves, is to assist in supporting the life of the plant, by exhalation from their upper surface, and by absorption from the under part.

SECTION II.

THE ELEMENTARY DIVISIONS OF A FLOWER, OR THE PARTS OF FRUCTIFICATION. — GENERAL REMARKS ON THE CALYX, COROLLA, NECTARY, STAMEN, PISTIL, SEED-VESSEL, SEED AND RECEPTACLE.—OBSERVATIONS ON THE VARIETY OF FLOWERS, AND ON INFLORESCENCE.

PARTS OF FRUCTIFICATION.

Having obtained a general knowledge of the preceeding parts, your attention must now be closely devoted to acquire a perfect comprehension of the parts of fructification; viz. the *flower* and the *fruit*.

OF THE FLOWER.

The parts which are considered necessary to form a perfect flower, are the *calyx*, the *corolla*, the *stamen*, the *pistil* and the *receptacle*. To these may be added the *nectary*, *seed-vessel* and *seed*.

THE CALYX.

The calyx is that part of the flower, often consisting of one or more green, or yellowish green

leaves placed at a small distance, or close to the corolla.

It is particularly conspicuous in the unexpanded flower bud of the Papaver Rhæas, consisting of two green leaves, as represented in the 29th figure. Also shown by the letter (a.) in the 1st figure.

There are many kinds of calyces enumerated in general works; viz. the *perianth*, the *fence*, the *catkin*, the *sheath*, the *glume*, the *veil* and the *curtain*.

Perianth:—The perianth or flower-cup is the most common kind. It is generally green and situate immediately below the flower, so as to form a part of it.

Possessed by the Leontodon Taraxacum, Rosa Centifolia, Papaver Rhæas, &c. (F. 29)

Involucrum:—The fence or involucrum, is a species of calyx peculiar to umbelliferous plants.

If it is placed below the common receptacle, (a. a. F. 31.) as in the Conium Maculatum, it is called a *general involucrum*; and when attached to the smaller divisions, as also in the *hemlock*, (b. b.) it is denominated a *partial involucrum*.

Amentum:—The catkin or amentum consists of a common cylindrical receptacle, beset with numerous scales, each of which is accompanied by one or more stamens or pistils, so that the whole forms an aggregate flower.

Illustrated in the Salix Alba, Humulus Lupulus, and others. (F. 30.)

Sheath:—The sheath or spathe is that kind of calyx, which is situated more or less remote from the flower, and after constituting a covering to the infant bud, opens longitudinally.

This species of calyx is present in the Colchicum Autumnale, but represented by the 33d Figure as it occurs in the snow-drop.

Glume:—The glume or husk is the peculiar calyx of corn or grasses, constituted by valves, enclosing one or more florets.

Avena Sativa, Hordeum Distichon, Triticum Hybernum, &c. (F. 32.)

Veil:—The veil or calyptra is a kind of membraneous hood which is said to be the calyx of the mosses, covering their capsule or fructification, like an extinguisher on a candle.

Curtain:—The curtain or volva is the membranous covering of the fungus tribe, concealing their parts of fructification.

The intention of the calyx, with respect to the economy of the flower, is to protect the interior organs from atmospheric or casual injuries.

COROLLA.

The corolla is the interior envelope of the flower, investing the central parts, but invested by the calyx.

It is usually, in fact, the principal and most beautiful part of the flower, being that which is most coloured, and commonly regarded as constituting the flower. (F. 1, b.)

If the corolla consists of more than one piece, the individual parts are technically called *petals*, or leaves of the flower.

The apparent use of the corolla is to protect the interior organs; and to increase or diminish the rays of heat for fecundation.

NECTARY.

With some flowers, there is a nectary or peculiar appendage, attached for the most part, to the corolla, secreting or containing a honied juice, though it is not necessary to a nectary, that honey should be present.

The *horn-like* process issuing from the base of the corolla of the Viola Odorata, is a nectary. It assumes, however, a great variety of shapes and situations in different genera of plants. In the Aconitum Napellus, it is *hooded;* in the Helleborus Niger, *tubular;* and in the Sinapis Alba, a *gland.*

STAMEN.

The stamens are very important organs of the flower. They are of a very slender fabric, and of a thread-shaped figure, situated, for the most part, immediately within the corolla.

In the flowers of the Crocus Sativus, you will find *three* stamens; *four* in Rubia Tinctorum; *five* in Daucus Carota; and so on, with others.

Stamens are divided into two parts; viz. a *filament* and an *anther.*

The *filament* is the thread-shaped part (b.) in the 11th Figure, and the head (a.) or *anther*, situated on the top of the filament.

The anther is the only essential part of the stamen. In this part there is a fine dust, called *pollen* or *farina;* which, when the anther is ripe and bursts, is discharged upon the summit of the pistil, and impregnates the embryo seeds in the germen.

PISTIL.

The pistils are likewise small and column shaped organs, of the utmost importance to the economy of the flower. They occupy, almost invariably, the centre of the flower, and are surrounded immediately by the stamens.

In the Crocus Sativus you will discover *one* pistil; in the Daucus Carota *two*; in the Linum Usitatissimum *five*; and in the different Roses, *many* pistils.

Pistils consist of three parts; viz. the *summit* or *stigma*, the *style*, and the *germen* or *ovary*.

The *stigma* is denoted by the letter (a.) in the 12th Figure; the *style* or middle portion by (b); and the *germen* at the inferior extremity, by the letter (c.)

The summit of the pistil is generally organized to absorb the pollen of the stamen, the fecundating influence of which is communicated through a tube in the style, to the undeveloped seeds in the germen. When this is accomplishing, the upper parts of the pistil fade away, but the germen, on the contrary, gradually increases in size, till it finally constitutes the *seed-vessel*.

SEED-VESSEL.

Seed-vessels are of seven different kinds; viz. *capsules, pods, legumes, drupes, pomes, berries* and *cones.*

Capsule:—The capsule is a dry, hollow, membranous seed-vessel, usually divided into valves, and opening naturally in some peculiar manner, according to the plant to which it belongs.

The Papaver Somniferum, Viola Odorata, Valeriana Officinalis, Nicotiana Tabacum, and many others, have capsular seed-vessels.

Pod:—The pod is a species of seed-vessel, which consists of two valves or partitions, within which, the seeds are fixed *alternately* to each seam.

If the pod is longer than it is broad (F. 39.), it is said to be a *silique*, as in the Sinapis Nigra; but if it is broader than it is long (F. 40.), it is then termed, a *silicle*, as in the Cochlearia Armoracia.

Legume:—The legume is likewise a seed-vessel of two valves, but in which the seeds are attached to one seam only.

The legume is met with in the Polygala Senega, Spartium Scoparium, Glycyrrhiza Glabra, and others. (F. 38.)

Drupe:—The drupe is either of a pulpy nature,

containing within, a single hard or bony nut, or only a dry and hard shell.

The latter kind will be found in the Amygdalus Communis, Quercus Robur; and the former in the Prunus Domestica.

Pome:—The pome is a seed-vessel of a peculiar fleshy nature, and instead of containing a nut, like the drupe, it incloses a capsule with several seeds.

As the fruit of the Pyrus Cydonia, Punica Granatum, &c.

Berry:—The berry is a species of seed-vessel, of a soft and pulpy nature, containing one or more seeds, but not separated by regular valves, nor enclosed within a capsule.

This kind is afforded by the Citrus Aurantium, Citrus Medica, Juniperus Communis, and many other vegetables.

Cone:—The cone or strobile is formed by an amentum with hardened scales, each scale containing a seed at its base.

The Humulus Lupulus, Pinus Sylvestris, and one or two other medical plants are furnished with coniferous vessels.

SEED.

A seed consists of several parts, some of which are more essential than others; as the *hilum*, *seed-coat*, *cotyledon* and *embryo*.

The *hilum* or *eye* is the external scar of a seed, by means of which it is fastened to the seed-vessel. The *seed coat* is the external covering; the *cotyledons* or *seed-lobes*, are the internal substances which constitute the bulk of the seed; and the *embryo* or heart, is that small part, which is the first principle of a new plant, and is commonly situated between the cotyledons.

The intention of the seed, in relation to vegetable life, is to continue the species from one season to another.

As soon as seed is deposited in a proper situation for germination, its several parts become acted upon, in a short while, by moisture and other stimuli; the seed-coat bursts, the cotyledons rise above ground as seminal leaves, a radicle or root is given out, and the plumelet ascends to form the infant plant. As circumstances are more or less favourable, these several parts increase, till the root has acquired sufficient strength to seek its own nourishment; the seminal leaves then die away, as being no longer required to yield nutrient matter, and the plant becomes perfect.

RECEPTACLE.

The receptacle is the seat or base on which the different parts of a flower are situated.

It is not always distinguishable by any partial figure, except in the Leontodon Taraxacum and other compound flowers, in which it is very remarkable and important. (F. 37.)

Receptacles are usually divided into two kinds; viz. *proper* and *common*.

Proper:—Proper or peculiar, when it belongs to only one flower.

As in the Papaver Somniferum, Rosa Canina, &c.

Common:—Common or general, when it connects several florets or distinct flowers, so that if any of them are removed, an irregularity is occasioned.

As in the Leontodon Taraxacum, Anthemis Nobilis, and other compound flowers.

VARIETY OF FLOWERS.

The different organs of the flower being explained, you have now to acquire a knowledge of the various kinds of flower, and of their manner of blooming or inflorescence.

When a flower is attached close to the branch or stem, it is said to be *sessile;* but if it is supported on a *peduncle* or partial stalk it is then termed a *pedunculated flower.*

The flowers of the Ulmus Campestris are *sessile;* while those of the Solanum Dulcamara being on a peduncle, (F. 6, a.) are *pedunculated.*

All flowers, according to their composition, are said to be either *simple* or *aggregate.*

Simple:—Simple flowers differ from aggregate flowers in not having any parts of the fructification common to many florets, but consisting of a single blossom.

The Atropa Belladonna, Nicotiana Tabacum, Hyoscyamus Niger, &c. have all *simple-flowers.*

A simple flower furnished with both calyx and corolla, is called a *complete flower:* when the corolla is wanting, *incomplete:* and when the corolla is present without the calyx, it is denominated a *naked flower.*

The Datura Strammonium has a *complete* flower; the Morus Nigra, an *incomplete* flower; and the Helleborus Niger a *naked* flower.

Aggregate:—Aggregate flowers are those in

which there are many *florets* or partial flowers, so connected by some part of the fructification, that not one of them can be taken out, without destroying the form of the whole.

Aggregate flowers are of two kinds; viz. the *aggregate*, properly so called, and the *compound*.

Aggregate:—The aggregate proper, have a common undivided receptacle, and the florets usually situated on foot-stalks.

Exemplified in the Conium Maculatum, and other plants, particularly of the umbelliferous order. (F. 16.)

The five species of flower, called by Linnæus the *umbellate*, *cymose*, *amentaceous*, *glumose*, and *spadiceous*, are nothing more than varieties of the kind of flower, now called aggregate proper.

The first were so called from their constituting an *umbel;* the second from their blooming in a *cyme;* the third from their calyx being an *amentum;* the fourth from its being a *glume;* and the last from their having a receptacle issuing from a *spadix*.

Compound:—Compound flowers consist of numerous florets, all sessile or seated on a common undivided receptacle, and inclosed in one continuous calyx. It is also essential to this kind of

flower, that the anthers be united into the form of a cylinder.

The Leontodon Taraxacum, Tussilage Farfara, Anthemis Nobilis, and others, have compound flowers. (F. 9.)

The florets which constitute a compound flower, may be of two kinds, viz. *ligulate*, or shaped like a strap; or *tubular*, in the form of a tube.

The *former* are represented by the letter (a,) in the 10th Figure; and the *latter* by the letter (b.)

All flowers, as well as florets, have received characteristic names according to the presence or absence of the stamens and pistils, hence they are called *perfect*, *barren* and *fertile*.

Perfect:—When the stamens and pistils, are both, as usual, in one flower, it is called *perfect*, *united* or *hermaphrodite*.

As in the Rosa Canina, Papaver Somniferum, and most plants.

Barren:—When there are stamens only, it is called a *barren* or *male flower*, because it produces no seed.

As in the Humulus Lupulus, Ricinus Communis, Quercus Robur, &c.

Fertile :—When pistils only, a *fertile* or *female flower*, as producing the seed.

As also in the Humulus Lupulus, Ricinus Communis, Quercus Robur, &c.

There are numerous other terms applied to flowers, as respects many peculiar traits connected with the *form* and *structure* of the corolla.

With regard to the *petals* of the corolla, if it is formed of one piece, the flower is called *monopetalous*; if of two, *dipetalous*; if three, *tripetalous*; and so on.

If there are no petals, it is then termed an *apetalous flower*; if many petals, *polypetalous*.

From the figure of the corolla, a flower is either *campanulate*, *funnel-shaped*, *papilionaceous*, or otherwise.

The following are among the most frequent to be met with in medical plants.

Companulate :— Companulate or bell-shaped, when it swells out without any expanding border.

As in the Atropa Belladonna, and several others. (F. l.)

Funnel-shaped :—Funnel-shaped, or infundi-

buliform, having a conical border, rising from a tube.

As in the Nicotiana Tabacum, Datura Strammonium, &c. (F. 2.)

Papilionaceous:—Papilionaceous or butterfly-shaped, irregular, usually consisting of four petals, and bearing some resemblance to the figure of a butterfly.

As in the Spartium Scoparium, Myroxylon Peruiferum, &c. (F. 3.)

With papilionaceous flowers of four petals, the lower petal, which is shaped somewhat like a boat, is called the *carina* or *keel*; the upper petal, the *vexillum* or *standard*; and the two lateral ones which stand singly, but separated by the keel, are denominated the *alæ* or *wings*.

Plaited:—Applied to flowers when they are expanded in on piece at the margin.

As for example, the bell-shaped flowers of the Convolvulus Scammonia, and others. (F. 4.)

Tubular:—Approaching very near in figure to the companulate.

As in the Digitalis Purpurea, &c. (F. 5.)

Wheel-shaped:—Rotate or wheel-shaped, when the corolla spreads without any tube.

As in the Solanum Dulcamara, Capsicum Aunnuum, &c. (F. 6.)

Cruciform:—Cruciform or cross-shaped, when the corolla consists of four equal petals, spreading out in the form of a cross.

As in the Sinapis Nigra, and Cochlearia Armoracia, (F. 7.)

Ringent:—Ringent or gaping, when it is irregular and opening with two distinct lips.

As in the Zingiber Officinale, &c. (F. 41.)

Hooded:—Hooded, when the upper petal of the corolla covers the inferior parts.

As in the Aconitum Napellus, &c. (F. 8.)

INFLORESCENCE.

The particular manner in which flowers are situated upon a plant, is denominated the manner of flowering or inflorescence.

There are ten modes of flowering peculiar to aggregate flowers. These are, the *whorl*, the *cluster*, the *spike*, the *corymb*, the *fascicle*, the *tuft*, the *umbel*, the *cyme*, the *panicle* and the *bunch*.

Whorl:—In the verticillus or whorl, the flowers surround the stem in a sort of ring,

though they may not always be inserted on all sides, but merely on two opposite ones.

This species of inflorescence is very distinct in the Mentha Pulegium. (F. 17.)

Cluster:—The racemus or cluster, consists of numerous rather distinct flowers, each on its own proper peduncle, and all connected by one common stalk.

As exemplified in the Solanum Dulcamara. (F. 14.)

Spike:—The spica or spike is a species of inflorescence, consisting of one common stalk bearing numerous flowers, all arranged along it without any, or having very small partial stalks.

As in the Digitalis Purpurea, Aloe Spicata, and many others. (F. 13.)

Corymb:—The corymbus or corymb is a spike, whose partial flower-stalks are gradually longer as they stand lower on the common stalk, so that all the flowers are nearly on a level.

This will be found the case in the Valeriana Officinalis. (F. 18.)

Fascicle:—The fasciculus or fascicle, is that kind of blooming in which the partial flowers on little foot-stalks, are variously inserted and sub-

divided and collected into a close bundle at the top.

Tuft:—The head or tuft is that kind, in which several flowers form a kind of ball or head at the extremity of the foot-stalks.

Umbel:—The umbella or umbel has several stalks or rays nearly equal in length, spreading from one common centre.

When each ray or stalk, bear an *umbella* or *little umbel*, the whole is said to be a *compound umbel*. In this case, the first or larger set of rays, constitute the *universal umbel*; while the second or lesser set of peduncles, form the *partial umbel*. Both kinds are present in the Conium Maculatum. (F. 16.)

Cyme:—The cyma or cyme consists of several flower-stalks, having the general appearance of an umbel, and agrees with it so far, that its common stalks proceed from one common centre, but differs in having those stalks variously and alternately divided.

Represented by the 19th figure.

Panicle:—The panicula or panicle, is that species, which bears the flowers in a sort of loose subdivided bunch or cluster without any order.

As in the Avena Sativa, and several others. (F. 15.)

culent substance, and of an oval or globular figure, situated either upon the root, stem or branch, from which they ultimately and spontaneously detach themselves, and form a new plant.

If they are attached to the root, they are called *radical* bulbs; but if to the stem or branch, they are denominated *caulinar*.

BUDS.

Buds are likewise a species of gem, of an ovate or conical figure, issuing from the axil of the leaves or from the sides and extremities of the branch. They contain the rudiment of future branches, leaves or fruit, but do not detach themselves spontaneously from the plant, and form new individuals.

Trees, shrubs, and most herbs have buds.

Buds are of three kinds; the *leaf-bud*, the *flower-bud*, and the *compound-bud*.

The *leaf-bud* is slender and acute, producing leaves only; the *flower-bud*, thick and short, containing the flower only; and the *compound-bud*, larger than either of the two, producing both the leaf and the flower.

STIPULES.

Stipules are small leafy appendages accompanying the real leaves, assuming the appearance of leaves in miniature; either situated close to the leaf, along the *petiole*, or at its junction with the branch or stem.

In the Rosa Centifolia, and Geum Urbanum, they are present; but in the latter, they form two very conspicuous leaves, as represented by the letters (a. a.) in the 35th figure.

BRACTEA OR FLORAL-LEAF.

The bractea or floral-leaf, is a leaf which in general, differs from the true leaves both in shape and colour. It is commonly situated on the peduncle, and often so close to the corolla as to be mistaken for the calyx.

Met with in the Heleborus Niger, Digitalis Purpurea, &c. (F. 36. a. a.)

THORN.

The thorn or spine is a sharp-pointed projection growing from the ligneous substance of some plants.

Although thorns are peculiar to some plants, they are not scattered over the whole surface; thus, they protrude from the stem and branches in the Rhamnus Catharticus; from the leaf in the Aloe Spicata; and from the seed-vessel in the Datura Stramonium.

PRICKLE.

The aculeus or prickle, is a sharp process from the plant, arising from the bark only, and not from the wood.

This species of appendage, is well known in the Rosa Canina, Rosa Centifolia, &c.

TENDRIL.

The cirrus or tendril is a fine spiral string or fibre, proceeding from different parts of the plant, by means of which, it fastens itself to some other plant or body for support.

Exemplified in the Vitis Vinifera Cucumis Colocynthis, &c. (F. 34.)

GLANDS.

Glands are small and minute appendages of various forms, formed chiefly on the surface of the leaf and petiole, but often also on the other parts of a plant.

Present on the base of the leaf in the Amygdalus Communis.

PUBESCENCE.

Pubescence means all sort of vegetable down

or hairiness, with which the surface of a plant may be covered.

Pubescence differs both in form and texture, but consists principally of small slender bodies, which are either soft and yielding to the slightest impression, or rigid and comparatively unyielding. The former are, properly speaking, *hairs*, and the latter *bristles*.

THE

LINNÆAN

ARTIFICIAL SYSTEM.

PART II.

ILLUSTRATIVE OF THE CLASSES AND ORDERS OF THE SYSTEM, MORE PARTICULARLY AS CONNECTED WITH THE ARRANGEMENT OF MEDICAL PLANTS.

THE

LINNÆAN

ARTIFICIAL SYSTEM.

SECTION I.

AN OUTLINE OF THE LINNÆAN ARTIFICIAL SYSTEM, WITH DELINEATIONS OF THE CLASSES AND ORDERS, AS USUALLY EMPLOYED FOR THE PURPOSES OF GENERAL BOTANY.

GENERAL VIEW OF THE SYSTEM.

The Artificial System of Linnæus, is founded entirely on the *stamens* and *pistils* of the flower, and according to his arrangement, all known plants are distributed into different *classes*, *orders*, *genera*, *species* and *varieties*.

Classes: — The classes are the first general division of all vegetables into twenty-four kinds, according to the number, or some other peculiarity of the stamens.

Orders: — Each of the twenty-four classes, admit of being subdivided into orders or tribes. These orders are derived from a *secondary* characteristic.

Genera:—The orders into which the classes are divided, are again subdivided into genera or families. The genera in their turn, are derived from peculiar characters, which many plants of the same order possess in common to themselves.

Species:—Species are a further division of a genus or family of plants into individual plants.

Varieties:—With some species of plants, owing to soil, situation or other causes, both the leaves and flower are subject to variation. When this is the case, they are denominated varieties.

OF THE CLASSES.

The character of the classes are established on six circumstances connected with the stamens.

First:—The ten first classes are founded on the *number* of stamens *alone*; viz.

Monandria,	one stamen.
Diandria,	two stamens.
Triandria,	three stamens.
Tetrandria,	four stamens.
Pentandria,	five stamens.
Hexandria,	six stamens.
Heptandria,	seven stamens.
Octandria,	eight stamens.
Enneandria,	nine stamens.
Decandria,	ten stamens.

Second:—The three next classes, are estab-

lished on the *number* and *insertion* of the stamens, as being attached to the receptacle, or to the calyx and corolla.

Dodecandria,	12 to 19, to the receptacle.
Icosandria,	20 to 1000, to the calyx, or corolla.
Polyandria,	20 to 1000, to the receptacle.

Third:—The fourteenth and fifteenth classes depend on the *number* and *proportion*; or *length* of the stamens one to another.

Didynamia,	two long, two short.
Tetradynamia,	four long, two short.

Fourth:—The next four classes are established on a consideration of the stamens being *united* one with another, into one or more parcels; and the class gynandria, from the circumstance of their being *united* to the pistil

Monadelphia,	filaments united into one set.
Diadelphia,	filaments united into two sets.
Polyadelphia,	united into three or more sets.
Syngenesia,	anthers united into a cylinder.
Gynandria,	stamens rising from the pistil.

Fifth:—The twenty-first and two following classes are founded on the principle of the stamens being *separate*, that is, not in the same flower, or on the same plant as the pistils.

Monœcia,	both on the same plant.
Diœcia,	both on two plants.
Polygamia,	both on one, two, or three plants.

Sixth:—The last class, is constituted by those plants in which the stamens and pistils are *concealed*, or not perceptible to the naked eye.

Cryptogamia,	concealed fructification.

DIVISION OF THE ORDERS.

The orders are the secondary divisions of the Linnæan system, and are established upon different principles.

In the first thirteen classes they are founded on *the number of pistils* in each flower.

Monogynia,	one pistil.
Digynia,	two pistils.
Trigynia,	three pistils.
Tetragynia,	four pistils.
Pentagynia,	five pistils.
Hexagynia,	six pistils.
Heptagynia,	seven pistils.
Octagynia,	eight pistils.
Enneagynia,	nine pistils.
Decagynia,	ten pistils.
Dodecagynia,	eleven to 19 pistils.
Polygynia,	twenty or more pistils.

The orders of the class didynamia, are taken from the *situation of the seed*.

Gymnospermia,	seeds without a capsule.
Angiospermia,	seeds in a capsule.

The orders of the classes, monadelphia, diadelphia, polyadelphia, and gynandria, are established on the *number of stamens;* and consequently called by the same names as the classes.

Monandria,	one stamen.
Diandria,	two stamens.
Triandria,	three stamens.
Polyandria,	many stamens.

The orders of the nineteenth class or syngenesia, are taken from *the structure of the flower.*

Polygamia æqualis,	stamens and pistils in each floret.
Polygamia frustranea,	the outer florets neutral.
Polygamia superflua,	only stamens in the outer florets.
Polygamia necessaria,	stamens central, pistils outer.
Polygamia segregata,	a calyx to each floret.

In the classes monœcia and diœcia, the orders are taken from the *number* and *other peculiarities of the stamens.*

Monandria,	one stamen.
Diandria,	two stamens.
Triandria. &c.	three stamens, &c.
Polyadelphia,	stamens in three or more sets.

In the twenty-third class, polygamia, the orders are established on *the separation of the stamens and pistils.*

Monœcia,	both on one plant.
Diœcia,	both on two plants.
Triœcia,	both on three plants.

The orders of the last class, or cryptogamia, are five in number, and founded on the *natural characters* of each production.

Filices,	ferns.
Musci,	mosses.
Hepaticæ,	liverworts.
Algæ,	flags.
Fungi,	mushrooms.

SECTION II.

AN EXPLANATION OF THE RESPECTIVE CLASSES AND ORDERS, MORE PARTICULARLY AS CONNECTED WITH MEDICAL BOTANY.

FIRST DIVISION.

The first *ten* classes are established on *the number* of stamens *alone*. The plants which belong to them produce simple perfect flowers.

CLASS I.—MONANDRIA.

Comprehending such plants as bear flowers with but *one* stamen. (F. 41.)

Monandria is divided into two orders;* viz. *monogynia* and *digynia*, according to *the number of pistils* in each flower.

The order *monogynia* only affords Medical Plants; *digynia* is a common division in General Botany.

Monogynia:—Each flower having *one* pistil, as in the

Curcuma Zedoaria.
Elettaria Cardamomum.
Zingiber Officinale.

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* All the *orders* of the first *thirteen* classes, as before said, are established on *the number of pistils*. We shall

The three medical plants of this class, in addition to their being of the same artificial order, also belong to one natural family.

They are all perennial natives of India, and arranged in the order *scitamineæ*.

CLASS II.—DIANDRIA.

The plants of this class, bear flowers with *two* stamens. (F. 42.)

Divided into three orders; viz. *monogynia*, *digynia* and *trigynia*.

The orders *monogynia* and *trigynia* only afford Medical Plants: *digynia* is a common division in General Botany.

Monogynia:—Having *one pistil* in each flower.

Gratiola Officinalis.
Olea Europea.
Rosmarinus Officinalis.

Trigynia:—Having *three pistils* in each flower.

Piper Cubeba.
Piper Longum.
Piper Nigrum.

The plants of this class bear no common natu-

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therefore, only explain in particular, those which afford medical plants, and enumerate the others as being the general divisions of each class.

ral characters, the seven being distributed in four natural orders.

The Gratiola belongs to *personatæ;* aloe to *sepiariæ;* Rosmarinus to *verticillatæ;* and the *piper* tribe to the order *piperitæ.*

CLASS III.—TRIANDRIA.

The third class includes those plants which bear flowers with *three* stamens. (F. 43.)

The class in question is also divided into three orders; viz. *monogynia, digynia* and *trigynia.*

The orders *monogynia* and *digynia,* only afford Medical Plants; *trigynia* is a common division in General Botany.

Monogynia:—Having *one pistil* in each flower.

Crocus Sativus.
Iris Florentina.
Valeriana Officinalis.

Digynia:—Having *two pistils* in each flower.

Avena Sativa.	Triticum Æstivum.
Hordeum Distichon.	Triticum Hybernum.
Saccharum Officinarum.	——

The plants of this division are arranged in three natural orders.

The Crocus and Iris belong to the family *ensatæ;* Valeriana to *aggregatæ;* and the five species in digynia to the extensive order *gramina.*

CLASS IV.—TETRANDRIA.

In this class, the flowers are furnished with *four* stamens, *all* equal in length, or nearly so.

In this circumstance they differ from plants of the class *didynamia*, which have *two* long and *two* short.

It is usually divided into three orders: viz. *monogynia*, *digynia* and *tetragynia*.

The order *monogynia* only, affords Medical Plants; *digynia* and *tetragynia*, are common divisions in General Botany.

Monogynia:—Embracing those plants of the class, which have *one pistil* in each flower.

Rubia Tinctorum. Dorstenia Contrayerva.

The two plants of this class are both perennial, but of different natural characters.

The first is of the natural order *scabrideæ*, and the second of the order *stellatæ*.

CLASS V.—PENTANDRIA.

The class pentandria is one of the most considerable in the system, and brings together those plants which produce flowers with *five* stamens. (F. 45.)

Its general orders are six in number; viz. *mo-*

nogynia, digynia, trigynia, tetragynia, pentagynia and *polygynia.*

The orders *monogynia, digynia, trigynia* and *pentagynia* furnish us with Medical Plants: *tetragynia* and *polygynia* are common divisions in General Botany.

Monogynia:—Including such plants of the pentandrous character as have *one pistil* in each flower; among which will be found, the

Anchusa Tinctoria.	Cusparia Febrifuga.*
Atropa Belladonna.	Datura Stramonium.
Capsicum Annuum.	Hyoscyamus Niger.
Cephaelis Ipecacuanha.	Menyanthes Trifoliata.
Chironia Centaurium.	Nicotiana Tabacum.
Cinchona Cordifolia.	Rhamnus Catharticus.
Cinchona Lancifolia.	Spigelia Marilandica.
Cinchona Oblongifolia.	Solanum Dulcamara.
Convolvulus Jalapa.	Strychnos Nux Vomica.
Convolvulus Scammonia.	Vitis Vinifera.

Digynia:—The second order also affords many medical plants, the flowers of which are possessed of *two pistils.*

Anethum Fœniculum.	Carum Carui.
Anethum Graveolens.	Conium Maculatum.
Angelica Archangelica.	Coriandrum Sativum.

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* The *Bonplandia Trifoliata* according to Wildenow; or *Galipea Officinalis,* in the first volume of the Transactions of the Medico-Botanical Society.

Bubon Galbanum
Daucus Carota.
Daucus Sylvestris.
Eryngium Maritimum.
Ferula Assafœtida.
Gentiana Lutea.
Heracleum Gummiferum.
Cuminum Cyminum.
Pastinaca Opoponax.
Pimpinella Anisum.
Rhus Toxicodendron.
Sium Nodiflorum.
Ulmus Campestris.

Trigynia :—Containing one medical species, in each flower of which will be found, *three pistils.*

Sambucus Nigra.

Pentagynia :—Including those plants of the class which produce *five pistils* in each flower.

Linum Catharticum.
Linum Usitatissimum.

The extent of this class, necessarily occasions the plants which we have enumerated to belong to several natural orders.

The Anchusa, is arranged in the order *asperifoliæ ;* Atropa, Capsicum, Datura, Hyoscyamus, Nicotiana, Solanum and Strychnos, in *luridæ ;* Cephaelis, in *aggregatæ ;* Chironia, in *rotaceæ ;* Cinchona in *contortæ ;* Convolvulus in *campanaceæ ;* Menyanthes in *preciæ ;* Rhamnus, Rhus and Sambucus, in *dumosæ ;* Spigelia in *stellatæ ;* Vitis, in *hederaceæ ;* Anethum, Angelica, Bubon, Carum, Conium, Coriandrum, Cuminum, Daucus, Eryngium, Ferula, Heracleum, Pastinaca, Pimpinella, and Sium, in *umbellatæ ;* Gentiana in *rotaceæ ;* Ulmus in *scabrideæ ;* and Linum, in *gruinales.*

CLASS VI.—HEXANDRIA.

The plants of this class have flowers with *six* stamens, all of one uniform length, or at least, nearly so, in which respect they differ from the class *tetradynamia.* (F. 46.)

None of the flowers of this class have four petals, as is the case with all those of the fifteenth. Indeed, all the medical species of hexandria, have *six* petals, except the *rumex acetosa*, which has but *three.*

The class hexandria is divided into five orders; viz. *monogynia, digynia, trigynia, hexagynia* and *polygynia.*

The orders *monogynia* and *trigynia* are the only two which afford Medical Plants, the other three are common divisions in General Botany.

Monogynia:—Having *one pistil* in each flower.

Acorus Calamus.
Allium Cepa.
Allium Porrum.
Allium Sativum.
Aloe Spicata.
Aloe Vulgaris.
Scilla Maritima.

Trigynia:—Having *three pistils* in each flower.

Colchicum Autumnale.
Rumex Acetosa.
Rumex Aquaticus.

The Medical Plants of this part of the system, do not possess many natural affinities.

The Acorus will be found to correspond with the natural order *piperitæ;* Allium and Colchicum to *spathaceæ;* Aloe and Scilla to *coronariæ;* and Rumex to *holeraceæ.*

CLASS VII.—HEPTANDRIA.

This class embraces such plants as produce flowers with *seven* stamens. (F. 47.)

Though a very small class, it is divided into four orders, viz. *monogynia, digynia, tetragynia* and *heptagynia.*

Monogynia:—The only heptandrous medical species, is one having *one* pistil in each flower, consequently belonging to this order.

This is the Æsculus Hippocastanum, or common Horse-chesnut, a native tree of Siberia, belonging to the natural family *trihilatæ.*

CLASS VIII.—OCTANDRIA.

The plants of this class have *eight* stamens in each flower, of which kind there is a great variety. (F. 48.)

The class is divided into four orders; viz. *monogynia, digynia, trigynia* and *tetragynia.*

The orders *monogynia* and *trigynia* are the only two which supply Medical Plants. The other two are common divisions in General Botany.

Monogynia:—Including those octandrous plants which have but *one pistil* in each flower.

Amyris Elemifera.
Amyris Gileadensis.
Daphne Mezereum.

Trigynia:—Comprehending those which have *three pistils* in each flower.

Polygonum Bistorta.

The few plants which we have mentioned as of this class, are arranged in three natural orders.

Amyris belongs to *dumosæ*; Daphne to *vepriculæ*; and Polygonum to *holeraceæ*.

CLASS IX.—ENNEANDRIA.

All plants of this class, bear flowers with *nine* stamens. (F. 49.)

Enneandria is divided into three orders; viz. *monogynia, trigynia* and *hexagynia*.

Monogynia and *trigynia* require attention as furnishing Medical Plants; while *hexagynia* is a common arrangement in General Botany.

Monogynia:—Each flower having *one pistil*.

Laurus Camphora.
Laurus Cassia.
Laurus Cinnamomum.
Laurus Nobilis.
Laurus Sassafras.

Trigynia:—Each flower having *three pistils.*

Rheum Palmatum. Rheum Undulatum.

The few Medical Plants which arrange in this class, are of the same natural tribe.

Both the genera Laurus and Rheum, consequently belong to the natural order *holeraceæ.*

CLASS X.—DECANDRIA.

Here we have arranged, all plants which bear flowers with *ten* stamens. (F. 50.)

The orders of decandria are five; viz. *monogynia, digynia, trigynia, pentagynia* and *decagynia.*

Of these orders *monogynia, digynia* and *pentagynia* comprehend Medical Plants. *Trigynia* and *decagynia* are common divisions in General Botany.

Monogynia:—Having *one pistil* in each flower.

Arbutus Uva Ursi.
Cassia Fistula.
Cassia Senna.
Copaifera Officinalis.
Guaiacum Officinale.
Hæmatoxylon Campechianum.
Myroxylon Peruiferum.
Quassia Excelsa.
Quassia Simarouba.
Rhododendron Chrysanthemum.
Ruta Graveolens.
Styrax Benzoin.
Styrax Officinale.
Swietenia Febrifuga.
Toluifera Balsamum.

Digynia:—Each flower having *two pistils.*

Dianthus Caryophyllus.

Pentagynia:—Every flower having *five pistils*.

Oxalis Acetosella.

The plants of the tenth class are distributed among seven natural orders.

Arbutus, Rhododendron, and Styrax, belong to *bicornes*; Cassia, Hæmatoxylon, and Myroxylon, to *lomentaceæ*; Copaifera, and Toluifera to *dumosæ*; Guaiacum, Quassia, and Oxalis to *gruinales*; Ruta to *multisiliquæ*; Swietenia to *trikilatæ*; and Dianthus to *caryophylleæ*.

SECOND DIVISION.

The three classes which constitute the second division, are founded on the *number* and *insertion* of the stamens.

CLASS XI.—DODECANDRIA.

Comprehending those plants which produce flowers with from *twelve to nineteen* stamens *inserted into the receptacle*. (F. 51.)

The orders are six in number; viz. *monogynia*, *digynia*, *trigynia*, *tetragynia*, *pentagynia* and *dodecagynia*.

The orders *monogynia*, *digynia*, and *triygnia*, afford Medical Plants; *tetragynia*, and the other two, are common divisions in General Botany.

Monogynia:—Each flower having *one pistil.*

Asarum Europeum. Canella Alba.

Digynia:—Each flower having *two pistils.*

Agrimonia Eupatoria.

Trigynia:—Each flower having *three pistils.*

Euphorbia Officinarum.

The four Medical Plants belonging to this class, do not possess any natural affinities, but are all arranged in different orders.

Asarum belongs to the tribe called *sarmentaceæ*; Canella to *holeraceæ*; Agrimonia to *senticosæ*; and Euphorbia to *tricoccæ*.

CLASS XII.—ICOSANDRIA.

This class embraces those plants which have flowers with *twenty or more* stamens, *inserted into the calyx or corolla.* Sometimes, however, there are not so many as twenty stamens. (F. 52.)

The class icosandria, altogether, is a very useful and innoxious selection of plants, scarcely comprising one of a poisonous nature.

It is divided into five orders; viz. *monogynia, digynia, trigynia, pentagynia* and *polygynia.*

The orders *monogynia, pentagynia* and *polygynia* are the

three which supply Medicinal Plants. *Digynia* and *trigynia* are common divisions in General Botany.

Monogynia :—Having *one pistil* in each flower.

Amygdalus Communis.
Eugenia Caryophyllata.
Myrtus Pimenta.
Prunus Domestica.
Punica Granatum.

Pentagynia :—Having *five pistils* in each flower.

Pyrus Cydonia.

Polygynia :—Each flower having *twenty or more pistils.*

Geum Urbanum.
Rosa Canina.
Rosa Centifolia.
Rosa Gallica.
Tormentilla Erecta.

The icosandrous Medical Plants are met with in only three natural divisions.

Amygdalus, Prunus, Punica and Pyrus, belong to the order *pomaceæ* ; Eugenia and Myrtus, to *hesperideæ* ; while the five we have mentioned in polygynia, assimilate with the *senticosæ*.

CLASS XII.—POLYANDRIA.

The plants arranged in this class, have from *twenty* stamens or *upwards*, all *inserted into the receptacle.* (F. 53.)

The class polyandria is particularly noted for its poisonous productions; a character very different to the icosandrous vegetables.

Polyandria is divided into seven orders; viz. *monogynia, digynia, trigynia, tetragynia, pentagynia, hexagynia* and *polygynia.*

The first, third, fourth, and last, are the only orders which contain Medical Plants; the other three are common divisions in General Botany.

Monogynia:—Including such plants of the class as have *one pistil* in each flower.

Papaver Rhœas. Papaver Somniferum.

Trigynia:—Including those which have *three pistils* in each flower.

Aconitum Napellus. Delphinium Staphisagria.

Tetragynia:—Claiming such as have *four pistils* in each flower.

Wintera Aromatica.

Polygynia:—Including those which have *twenty or more pistils* in each flower.

Helleborus Fœtidus. Helleborus Niger.

The plants enumerated as partaking of the

polyandrous character, are mostly arranged in two natural orders.

Papaver belongs to *rhœadeæ;* while Aconitum, Delphinium, and Helleborus contribute to form the family denominated *multisiliquæ*. The natural order for Wintera, is not mentioned in medical writings.

THIRD DIVISION.

There are only two classes in this division; and these are founded on the *number and proportion* of the stamens.

CLASS XVI.—DIDYNAMIA.

The present class is constituted by plants whose flowers have *four* stamens; *two long* and *two short*. (F. 54.)

The fourth class, *tetrandria*, has also *four* stamens, but all of an equal length or nearly so, which very effectually divides if from *didynamia*.

With all the preceding classes, the number of pistils established the different orders; but here, the *presence or absence of the seed vessel*, divides the class into two orders; the first called *gymnospermia*, and the second *angiospermia*.

Both of these orders we shall find, supply Medical Plants.

Gymnospermia.—This order contains those didynamous plants, which are *destitute of a proper seed-vessel;* the seeds being usually in an open calyx.

Hyssopus Officinalis.	Mentha Pulegium.
Lavandula Spica.	Mentha Viridis.
Marrubium Vulgare.	Origanum Vulgare.
Melissa Officinalis.	Teucrium Chamædrys.
Mentha Piperita.	Teucrium Marum.

Angiospermia:—Containing those plants answering the character of the class, which have their seeds covered, that is, *lodged in a proper seed-vessel.*

Digitalis Purpurea.	Scrophularia Nodosa.

The plants of this class, particularly of the first order, have many natural relations, consequently are not much distributed in their natural arrangement.

Hyssopus, Lavandula, and all the plants of gymnospermia belong to *verticillatæ;* Digitalis to *luridæ;* and Scrophularia to the order *personatæ.*

CLASS XV.—TETRADYNAMIA.

The plants of this class have perfect flowers with *six* stamens, *four* of which are *longer* than the other *two.* (F. 55.)

The flowers are also *cross-shaped*, consisting of *four* petals; which, together with the above character, is sufficient to distinguish plants of this class from those of *hexandria*.

There are two orders in this class; viz. *siliculosa* and *siliquosa;* both founded on *the form of the seed vessel.*

Both the orders of this class also, afford Medical Plants, though not so numerous as those of didynamia.

Siliculosa:— The plants of this order are furnished with that kind of seed-vessel which is called a *silicle* or little pod.

Cochlearia Armoracia.

Siliquosa:—The plants of the second order, instead of having a little pod, have a *silique* or very long pod.

Cardamine Pratensis.
Sinapis Alba.
Sinapis Nigra.

Tetradynamia, is almost a natural class, consisting, in fact, of two extensive families of plants, which are included under one natural order.

The plants we have mentioned, therefore, belong to the same natural family, or in other words, to the common order *siliquosæ*.

FOURTH DIVISION.

In this division, we shall explain those classes which are founded on a consideration of *the union of the stamens one to another;* or on the other hand, *the union of the stamens with the pistil.*

CLASS XVI.—MONADELPHIA.

This is a vast and interesting class, embracing those plants, the flowers of which, have *all* their stamens *united below*, that is by their filaments, *into one body or set*, through which the pistil passes.

It will be as well to observe, in the present place, that the orders of modadelphia are founded on the *number and other peculiarities* connected with *the stamen*, and are named after the classes and employed with the same meaning. It is consequently, the *union of the filaments* which gives rise to the class.

The orders of this class, are eight in number—viz. *triandria, pentandria, heptandria, octandria, decandria, endecandria, dodecandria,* and *polyandria,* according to *the number of stamens* in each flower.

Triandria and *polyandria* are the only two sub-divisions from which we can select Medical Plants as illustrations. The other six orders are commonly met with in General Botany.

Triandria:—There is only one Medical Plant which has *three stamens.*

Tamarindus Indica.

Polyandria:—Containing two Medicinal Plants of the monadelphous character: the flowers of which, have *more than twenty stamens inserted in the receptacle.*

Althæa Officinals. Malva Sylvestris.

The three plants of monadelphia, belong to two natural orders.

The Tamarindus to *lomentaceæ*, and the Althæa and Malva to the tribe called *columniferæ*.

CLASS XVII.—DIADELPHIA.

With plants belonging to this class, the flowers have their stamens *united by their filaments into two sets.* (F. 57.)

The same remarks may be made here, as in the last class, with respect to the essential foundation of the class, and the origin of the orders.

There are four orders of plants in diadelphia—viz. *pentandria, hexandria, octandria,* and *decandria,* all established on *the number of stamens* in each flower.

The orders *octandria* and *decandria* are those which require our notice; the other two are common divisions in General Botany.

Octandria:—Each flower having *eight stamens*.

Polygala Senega.

Decandria:—Each flower having *ten stamens*.

Astragalus Tragacantha.
Dolichos Pruriens.
Geoffræa Inermis.
Glycyrrhiza Glabra.
Pterocarpus Erinacea.
Pterocarpus Santalinus.
Spartium Scoparium.

The plants of this class, which are used in medicine, are mostly of one natural order.

Polygala belongs to *lomentaceæ*; but Astragalus, Dolichos and the remainders are arranged under *papilionaceæ*.

CLASS XVIII.—POLYADELPHIA.

In this class, the flowers have their stamens *united by their filaments into more than two sets*. (F. 58)

Polyadelphia, it is observed, is also established on the same principle as the last two classes. The orders, however, do not depend on the *number* of stamens alone.

There are three orders; viz. *dodecandria, icosandria* and *polyandria*. These are, of course, established on the *number and insertion* of the stamens.

The second order is the only one which affords Medicinal Plants. *Dodecandria* and *polyandria* are common divisions in General Botany.

Icosandria:—An order, in which the flowers have *numerous* stamens *inserted in the calyx* or *corolla*.

Citrus Aurantium.
Citrus Medica.
Melaleuca Leucodendron.

The three plants of polyadelphia icosandria, are found in two natural orders.

The genus Citrus in *bicornes*, and Melaleuca in *hesperideæ*.

CLASS XIX.—SYNGENESIA.

This is a very extensive class, comprehending for the most part, those plants which produce *compound flowers*. (F. 59.)

The necessary character, however, is, *the anthers united into a cylinder or tube*, whilst the filaments, by which they are supported, are separate and distinct. The pistil passes through the tube formed by the anthers.

Its orders are five; viz. *polygamia æqualis, polygamia superflua, polygamia frustranea, polygamia necessaria*, and *polygamia segregata*. These orders are all founded on *the structure of the flower*.

Medical species are only afforded by the two first, *polygamia æqualis*, and *polygamia superflua*; but as it is rather a complex class, I shall explain each order respectively.

Polygamia æqualis:—In the plants of this order, the florets or partial flowers are all *perfect* or *united*, that is, furnished with their own perfect stamens and pistils, and thereby capable of bringing their seed to maturity, without the assistance of any other floret.

Arctium Lappa.	Lactusa Virosa.
Lactuca Sativa.	Leontodon Taraxacum.

Polygamia superflua:—With the plants of this subdivision, the florets in the centre or disk are *perfect* or *united*, while those of the circumference or margin, are furnished with pistils only.

Anthemis Nobilis.	Artemisia Santonica.
Anthemis Pyrethrum.	Inula Helenium.
Arnica Montana.	Solidago Virga Aurea.
Artemisia Arbrotanum.	Tanacetum Vulgare.
Artemisia Absinthium.	Tussilago Farfara.
Artemisia Maritima.	

Polygamia frustranea:—In the flowers of this order, the florets of the disk or centre, are *perfect*, or supplied with both stamens and pistils, while the flat florets of the margin or circumference are *neuter*, that is, destitute both of stamens and pistils.

The common sun-flower, Jerusalem artichoke, and blue-bottle, are very frequent specimens of this order.

Polygamia necessaria:—In this order, the florets

of the centre are furnished with *stamens only*, while those of the margin or circumference, are merely supplied with *pistils*.

The family calendula or marygold is the most common you can consult for polygamia necessaria.

Polygamia segregata:—This order of syngenesia, embraces such plants as bear flowers, either simple or compound, but with *united* tubular *anthers*, and *with a partial calyx*, all included in one general calyx.

Examples of this order occur in the genera Echinops or globe-thistle, Elephantopus or elephant's-foot, and a few others.

All the Medical Plants we have mentioned, are not only syngenesious, but likewise arranged in one Natural Order.

This order is the Linnæan *compositæ*, because every plant which it embraces, produce compound flowers.

CLASS XX.—GYNANDRIA.

The plants of this class are furnished with perfect flowers, the stamens of which are *inserted* either upon the *style* or *germen* of the pistil. (F. 60.)

The general division of the class is into seven

orders; viz. *monandria, diandria, triandria, tetrandria, pentandria, hexandria* and *octandria;* according to *the number of stamens* in each flower.

Of these orders, *hexandria* is the only one which requires our attention.

Hexandria:—Every plant producing *six stamens* in each flower.

Even in this order, there is only one Medical Plant; viz. the Aristolochia Serpentaria, a native of North America, belonging to the natural order *sarmentaceæ.*

FIFTH DIVISION.

The classes which we have hitherto explained, are constituted by plants, the flowers of which are *perfect,* or in other words, furnished with both stamens and pistils. In the classes of this division, we shall ascertain that those organs may not only be in different flowers on the same plant, but also on different plants.

According to the nature of these differences, there are three classes, viz. *monœcia, diœcia* and *polygamia.*

CLASS XXI.—MONŒCIA.

The plants of this class, are particularly distinguished by their producing some flowers with

stamens only, and some flowers with *pistils only*, both kinds growing *on the same plant*.

Monandria, diandria, triandria, tetrandria, pentandria, hexandria, polyandria, monadelphia and *polyadelphia* are the orders.

The first six orders are established on *the number* of stamens *alone; polyandria* on the *number* and *insertion; monadelphia* on *the union* of the filaments into *one set*; and *polyadelphia* on *the union* of the filaments into *more* than two *sets*.

Tetrandria:—In this order are arranged such plants of the monœcious character, as produce barren flowers with *four* stamens.

Morus Nigra.

Polyandria:—Including those plants of the class which produce barren flowers with *more than seven* stamens.

Arum Maculatum.
Quercus Infectoria.
Quercus Pedunculata.
Quercus Robur.

Monadelphia:—Embracing those plants, the barren flowers of which, have their filaments *united into one set.*

Croton Cascarilla.
Croton Tiglium.
Cucumis Colocynthis.
Momordica Elaterium.
Pinus Abies.
Pinus Balsamea.
Pinus Larix.
Pinus Sylvestris.
Ricinus Communis.

Of the Medical Plants in monœcia there are scarcely two genera which belong to the same natural order.

Thus, Morus will be found among the *scabrideæ;* Arum in *piperitæ;* Quercus in *amentaceæ;* Croton and Ricinus in *tricoccæ;* Cucumis and Momordica in *cucurbitaceæ*, and Pinus in *coniferæ*.

CLASS XXII.—DIŒCIA.

The twenty-second class contains those plants which have no perfect flowers, but produce *flowers with stamens* on one plant, and *flowers with pistils* on another of the same species.

Like the preceding class, diœcia is also usually divided into nine orders; viz. *monandria, diandria, triandria, tetrandria, pentandria, hexandria, octandria, polyandria* and *monadelphia.*

The first eight, are derived from *the number* of stamens *alone: polyandria*, when there are *more* than eight stamens; and *monadelphia*, when the filaments of the stamens are *united* into *one set*.

***Diandria:*—Each barren flower having *two stamens*, as in the**

Salix Alba.
Salix Caprea.
Salix Fragilis.

Pentandria:—Each barren flower having *five stamens*, as in the

Humulus Lupulus.
Pistacia Lentiscus.
Pistacia Terebinthus.

Hexandria:—Each barren flower having six *stamens*, as in the

Smilax Sarsaparilla.

Monadelphia:—The *filaments* of the stamens *united* into *one set*, as in the

Juniperus Communis.
Juniperus Sabina.
Myristica Moschata.

The six genera of Medical Plants belonging to this class, are nearly all of different natural arrangements.

Salix and Pistacia assist in forming the family *armentaceæ*; Humulus is classed with the *scabrideæ*; Smilax, with the *sarmentaceæ*; Juniperus with the *coniferæ*; and Myistica with the *holeraceæ*.

CLASS XXIII.—POLYGAMIA.

This class includes such plants as produce three kind of flowers; viz. some with *pistils* only, some with *stamens* only, and others with *both*;

and these flowers situate on *the same* individual plant, or on *two* or *three* different plants of *the same species*.

The orders of polygamia are three; viz. *monœcia, diœcia* and *triœcia*.

The two former are named in accordance with the classes so called, and *triœcia* because with the plants which it embraces, there are *stamens only* on one plant, *pistils only* on another, and *both stamens and pistils on a third, all* of the same species.

Monœcia:—Including those plants which have *perfect* flowers, accompanied with *barren* or *fertile* flowers, *or both*, on *the same* plant.

Acacia Catechu.
Acacia Vera.
Stalagmatis Cambogioides.
Veratrum Album.

Diœcia:—Embracing those plants which have the three different flowers on *two* of the same species.

Ficus Carica*.
Fraxinus Ornus.

The Medical Plants of this class do not appear to have many natural affinities, since they are all arranged in different natural orders.

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* Polygamia Triœcia.—Hort. Cantab.

The genus Acacia belongs to *lomentaceæ*; Staphagmalis to *tricoccæ*; Veratrum to *coronariæ*; Ficus to *scabrideæ*; and Fraxinus to *sepiariæ*.

SIXTH DIVISION.

This division brings us to the last class of the Linnæan Artificial System. The plants which belong to it are widely different to those we have considered.

CLASS XXIV.—CRYPTOGAMIA.

The class cryptogamia contains a vast assemblage of vegetables, in which the parts of fructification are, either from their minuteness or from their particular situation, entirely concealed or imperfectly visible.

The class has been divided into five natural orders—viz. *filices*, *musci*, *hepaticæ*, *algæ*, and *fungi*, each established on the distinguishing characters of the productions they embrace.

Of these, *filices*, *musci*, *algæ*, *and fungi*, form four orders in the Linnæan Natural System.

Filices or *Ferns*:—This order contains a selection of plants, the fructifications of which, are essentially different, at least in point of situation,

being generally diffused in spots or lines on the under surface of the leaf.

Aspidium Filix Mas.

Musci or *Mosses*:—These plants have roots and leaves something like those of other plants, but the fruit is very different. Small threads like the filaments of stamens generally grow out of the bosom of the leaves, and support little roundish bodies that resemble anthers, but which are really the capsules that contain the seed.

Hepaticæ or *Liverworts*:—The productions of this order, are a tribe of small plants resembling mosses, in which the herbage, generally speaking, is leafy, and the fructification originates from what is at the same time, both leaf and stem. The capsules have no lid or operculum, as in the the mosses.

Algæ or Flags:—The fourth order is constituted by plants in which the herbage is sometimes leafy, sometimes a mere crust, and sometimes of a leathery or gelatinous texture. The seeds are either embedded in the frond itself, or in some peculiar receptacle.

Fucus Vesiculosus.
Lichen Islandicus.
Lichen Rocella.

Fungi or Mushrooms:—This order is composed of a tribe of plants of a fleshy substance, generally of a quick growth and short duration, differing in firmness, from a watery pulp to a leathery or even woody texture.

Boletus Ignarius.

SECTION III.

CONTAINING GENERAL RULES FOR ASCERTAINING THE CLASS, ORDER, GENERA, AND SPECIES OF PLANTS ACCORDING TO THE LINNÆAN SYSTEM.

THE CLASS.

If you have a plant, and wish to know its *class*, you must remember, that the classes are founded on six circumstances connected with *the stamen*.

You must first examine the parts of fructification, and see to which *division* of the system the stamens correspond.

Having proved the *division*, you will have no difficulty to come at *the individual class*.

THE ORDER.

Some classes, it is remembered, are numerously subdivided, but by a little attention, you can soon reduce your plant to its proper *order*.

THE GENUS.

Your investigation being so far made, as to be

certain of the *class* and *order* to which your plant belongs, refer to the said class and order, in a good systematic arrangement or *genera planturum*, and taking notice of the different *genera* by which the order is constituted, carefully examine the principal characters of the plant under examination, and mark which *genus* it *most* resembles.

THE SPECIES.

The *genus* being fixed upon, to which you think the plant belongs, read over the *species*, and by comparing the plant with what you read, there will be no difficulty in finding *its name*, though you might never have seen or heard of the plant before.

THE

LINNÆAN

NATURAL SYSTEM.

PART III.

EXPLAINING THE GENERAL MEANING OF THE DIFFERENT ORDERS, WITH ALLUSIONS TO THE MOST FREQUENT CHARACTERS POSSESSED BY THE MEDICAL PLANTS ENUMERATED UNDER EACH HEAD.

THE

LINNÆAN

NATURAL SYSTEM.

ORDER I.—PALMÆ.

The tribe of *palms* is an entire natural and very distinct order, constituted by families of lofty plants with very peculiar frondose tops.

Cocos Butyraceæ.

This plant corresponds to the general character of the order.

Emollient in medicinal virtues: has a three-leaved calyx; a corolla of six or three petals; flowers monœcious; stamens six; and the seed a one-celled, smooth, and succulent drupe.

ORDER II.—PIPERITÆ.

The plants of this division have an acrid flavour, whence they are called *pepper-plants*.

Acorus Calamus.	Piper Longum.
Arum Maculatum.	Piper Nigrum.
Piper Cubeba.	——

In natural characters, the medical species are not very similar.

Natural Characters:—Root and stem indefinite; leaves sword-shaped, triangular, ovate or cordate; stamens two, six, or more; fruit a capsule or berry.

Medical Properties:—Acorus Calamus and the Peppers are considered stomachic, carminative, and stimulant; and the Arum Maculatum, stimulant, diuretic, and errhine.

ORDER III.—CALAMARIÆ.

Consisting of such plants as are usually called *reeds*, and most of which are very closely related to the true grasses.

ORDER IV.—GRAMINA.

This order embraces the *true grasses*, a very peculiar and extensive tribe of plants.

Avena Sativa.	Triticum Æstivum.
Hordeum Distichon.	Triticum Hybernum
Saccharum Officinarum.	——

The Medical Plants here mentioned, have several natural common characters.

Natural Characters:—They have fibrous roots; hollow stems or culms; inflorescence either a spike or panicle; calyx two-valved; from one to six stamens; and the germen superior, with two pistils.

Medical Properties:—The Saccharum Officinarum is reckoned nutrient and slightly aperient, and all the rest are valuable nutrients and emollients.

ORDER V.—TRIPETALOIDES.

The plants of this order, have flowers with *three petals* only, and are nearly allied to the grasses, but possess no very striking characters.

ORDER VI.—ENSATÆ.

The sword-shaped leaves of some plants, have established this order, hence they are called *sword-leaved plants.*

Crocus Sativus. Iris Florentina.

The calyx is a kind of spurious spathe; corolla usually of six petals; seed-vessel a capsule of three cells and three valves, with many seeds.

ORDER VII.—ORCHIDEÆ.

The plants of this order are of the *orchis tribe,* forming a peculiar selection of vegetables.

ORDER VIII.—SCITAMINEÆ.

This is an order of plants approaching the orchideæ in aspect. They are of an *aromatic* nature, from whence the name of the order is derived.

Curcuma Zedoaria.
Elettaria Cardamomum.
Zingiber Officinale.

These scitaminous plants have considerable natural affinities.

Natural Characters:—The roots are fleshy, mostly acrid and aromatic; stem simple; leaves lanceolate, entire; inflorescence either a spike or cluster; flower superior; one stamen; one pistil; calyx a perianth of three valves; corolla irregular.

Medical Properties:—The three plants are all possessed of stimulating, carminative and stomachic properties.

ORDER IX.—SPATHACEÆ.

In this order are arranged those plants, which produce flowers with a *spathe* or *sheath*.

Allium Cepa. Allium Sativum.
Allium Porrum. Colchicum Autumnale.

These plants principally correspond in root, leaves and scape.

Natural Characters:—The roots are bulbous; leaves

usually sheathing at the root, and either linear, or linear-lanceolate; stem, a round, two-edged or triangular scape; corolla one or more petalled; stamens six; pistils one or three; capsules three celled.

Medical Properties:—The three first are expectorant and diuretic, and the Colchicum Autumnale, narcotic, diuretic, and cathartic.

ORDER X.—CORONARIÆ.

An order so named from many of its plants producing flowers which were formerly used to decorate a *coronary* or garland.

Aloe Spicata.	Scilla Maritima.
Aloe Vulgaris.	Veratrum Album.

The plants before us are very similar in natural characters, and very fairly so in medical virtues.

Natural Characters:—Roots tuberous; stem simple, often a mere scape; flower of six petals; no calyx; six stamens; one or three pistils; germen superior; capsules three celled and three valved, with many seeds.

Medical Properties:—The two Aloes are of a warm stimulating cathartic nature; the Scilla Maritima emetic, expectorant, diuretic, and even cathartic; and the Veratrum Album, violently emetic, purgative and stimulant.

ORDER XI.—SARMENTACEÆ.

A set of plants so called from their being unarmed, long, weak, and of a trailing or twining habit.

Aristolochia Serpentaria.
Asarum Europeum.
Smilax Sarsaparilla.

The plants of this order do not agree very closely in their general characters, though bearing great similarity in medical properties.

Natural Characters:—They are all monocotyledonous; roots fibrous; stems various; leaves simple and undivided, sometimes cordate, kidney-shaped or ovate; flowers on stalks; corolla none or one petalled; stamens six or more; styles usually three; the fruit six or three-celled.

Medical Properties:—The Aristolochia Serpentaria is diaphoretic and diuretic; the Asarum Europeum, emetic, diaphoretic and diuretic; and the Smilax Sarsaparilla, diaphoretic and diuretic.

ORDER XII.—HOLERACEÆ.*

This order is intended to embrace those plants which are tender or brittle in the mouth. They are commonly called *pot-herbs*, and many of them are employed for culinary purposes.

Canella Alba.
Laurus Camphora.
Laurus Cassia.
Laurus Cinnamomum.
Laurus Nobilis.
Laurus Sassafras.
Myristica Moschata.
Polygonum Bistorta.
Rheum Palmatum.
Rheum Undulatum.
Rumex Aquaticus.
Rumex Acetosa.

* Incorrectly printed in many works *koloraceæ*.—Sir J. E. Smith.

The natural characters of these plants are very vague, as also are their medicinal qualities.

Natural Characters:—The roots are arborescent or otherwise; stems various; leaves usually entire and long; inflorescence a cluster, panicle, spike or whorl; corolla none one, or more petalled; calyx sometimes wanting; stamens and pistils indefinite; seed-vessel a berry, drupe, legume, or capsule.

Medical Properties:—The Canella Alba is stimulant and stomachic; the Laurus Camphora narcotic, diaphoretic and sedative; the Laurus Cassia, laxative; the Laurus Cinnamonum and Myristica Moschata, stimulant, carminative and narcotic; the Laurus Sassafras, stimulant, sudorific, and diuretic; the Polygonum Bistorta, astringent and tonic; the Rhubarbs purgative and astringent; the Rumex Acetosa diuretic; and the Rumex Aquaticus, astringent.

ORDER XIII.—SUCCULENTÆ.

In this division, are arranged such plants as are of a fleshy and juicy nature.

ORDER XIV.—GRUINALES.

This order brings together those plants which have flowers somewhat resembling a *crane's bill.*

Guaiacum Officinale.	Oxalis Acetosella.
Linum Catharticum.	Quassia Excelsa.
Linum Usitatissimum.	Quassia Simarouba.

With the plants of this division, the natural

characters and medical properties are not very much alike.

Natural Characters:—The roots are arborescent or fibrous; stems erect; leaves obovate, lanceolate, obcordate, elliptical or oblong; inflorescence generally simple; corolla five petalled; calyx, five leaved; stamens, five or ten; pistils one or five; and the seed-vessel, a three or more celled capsule or a drupe.

Medical Properties:—The Guaiacum Officinale is called diaphoretic and stimulant; the Linum Catharticum, purgative; the Linum Usitatissimum, emollient; and the two species of Quassia, tonic.

ORDER XV.—INUNDATÆ.

An order of plants, so called, because they grow in water, many of them under the surface, except their blossoms.

ORDER XVI.—CALYCIFLORÆ.

Plants of the shrub and tree kind having *the stamens* inserted into the calyx.

ORDER XVII.—CALYCANTHEMÆ.

Plants having the *corolla and stamens* inserted into the calyx.

Lythrum Salicaria.

A woody root; stem downy; leaves lanceolate; corolla of six petals inserted into a twelve-toothed calyx; from

twelve to nineteen stamens; one pistil; and a two-celled capsule with many seeds. Of tonic and astringent properties.

ORDER XVIII.—BICORNES.

So called because many of the plants which belong to it, have the anthers terminating in *two beaks* or *horns*.

Arbutus Uva Ursi.	Rhododendron Chrysanthemum.
Citrus Aurantium.	Styrax Benzoin.
Citrus Medica.	Styrax Officinale.

The plants of *bicornes* do not altogether differ very materially in natural affinities, or in medical virtues.

Natural Characters:—Root, arborescent; stem, shrubby; leaves, obovate, ovate, elliptical, oblong; inflorescence, a cluster, peduncle, or spike; corolla, one or five petalled; calyx, generally five-cleft; stamens, from four to ten; pistil, one; seed-vessel, a berry or drupe.

Medical Properties:—The Arbutus Uva Ursi, is recommended as a tonic and astringent; the juice of the Citrus Aurantium and Citrus Medica is refrigerant, and the rind tonic; the Rhododendron Chrysanthemum, stimulant, narcotic and diaphoretic, and the two species of Styrax are stimulant and expectorant.

ORDER XIX.—HESPERIDEÆ.

This order is said to consist of aromatic and elegant shrubs and trees.

Melaleuca Leucodendron.	Myrtus Pimenta.

These two plants have some natural characters alike, and correspond in medical virtues.

Natural Characters:—Root, arborescent or fibrous; stem, shrubby, branching; leaves, lanceolate, entire; corolla, five-parted; calyx, five-cleft; stamens, five or icosandrous; pistil, one; and the fruit, a capsule of many seeds.

Medical Properties:—The cajeput oil, or product of the Melaleuca Leucodendron, is stimulant, anti spasmodic, and diaphoretic; and allspice, the fruit of the Myrtus Pimenta, is stimulant and carminative.

ORDER XX.—ROTACEÆ.

Embracing plants with a *wheel-shaped* corolla.

Chironia Centaurium. Gentiana Lutea.

Both the chironia and gentiana have natural and medicinal characters common to the two.

Natural Characters:—Root woody; leaves mostly sessile; elliptical, spear-shaped; corolla divided into five or eight narrow segments; calyx, five-cleft or a spathe; stamens five; pistil one or two; fruit a capsule. They are both tonic and stomachic.

ORDER XXI.—PRECIÆ.

A division of plants derived from *pricins*, early; because they flower early in the spring.

Menyanthes Trifoliata.

Natural Characters:—The root of this plant is fibrous;

stem branched; leaves obovate; corolla, funnel-shaped, cleft into five deep segments; calyx, five-toothed; stamens five; pistil one; seed-vessel a capsule of one cell. In medical properties it is tonic, diuretic and purgative.

ORDER XXII.—CARYOPHYLLEÆ.

This order consists of the tribes of pink and campion, with numerous other plants having natural affinities to the same.

Dianthus Caryophyllus.

Natural Characters:—A perennial plant with a fibrous root; leaves channelled, linear, glaucous; corolla, five petalled; calyx tubular, five cleft; stamens ten; pistils two; fruit a cylindrical capsule of one cell. In medical properties said to be aromatic.

ORDER XXIII.—TRIHILATÆ.

Containing plants with *three-celled* and *three-grained* fruit, all the cells being distinct, and each seed marked with the hilum or scar.

Æsculus Hippocastanum. Swietenia Febrifuga.

These two trees have several natural affinities, and agree in medical properties.

Natural Character:—The root and stem, arborescent; leaves, digitated or abruptly-pinnated; inflorescence, a spike or panicle; corolla, five-petalled; calyx, five-cleft; the seed-vessel, a capsule.

Medical Properties:—They are both tonic, stomachic, and antiseptic.

ORDER XXIV.—CORYDALES.

Plants with irregular flowers, somewhat resembling a helmet.

ORDER XXV.—PUTAMINEÆ.

Plants having their fruit covered with a strong rind, or hard woody shell.

ORDER XXVI.—MULTISILIQUÆ.

Plants with *more than two* seed-vessels.

Aconitum Napellus.	Helleborus Niger.
Delphinium Staphisagria.	Ruta Graveolens.
Helleborus Fœtidus.	

With an order established on such a slight basis for distinction as the present, it cannot be expected that its plants should agree one with the other.

Natural Character:—Roots and stems, indefinite; the leaves, palmated, pedate, or doubly-pinnate; inflorescence, simple, a spike, or a corymb; corolla, four, five, or more petalled; calyx, present in ruta graveolens, wanting in the others; stamens, ten or more; pistils, one, three, or many; fruit, pods or capsules.

Medical Properties:—The Aconitum Napellus is narcotic, sudorific, and deobstruent; the Delphinum Staphisagria and Hellebores, cathartic, emmanagogue and vermifuge; and the Ruta Graveolens, tonic and antispasmodic.

ORDER XXVII.—RHŒADEÆ.

The order in question, is constituted by the poppy tribe, and a few other genera of plants.

Papaver Rhœas. Papaver Somniferum.

With these two plants, the natural characters and medical virtues are very similar.

Natural Characters:—Roots, fibrous; stems, erect, smooth, or rough; leaves, sessile, pinnatifid, obtuse; corolla, four-petalled; calyx, two-leaved; stamens, polyandrous; pistil, one; and seed-vessel, a capsule of one cell.

Medical Properties:—The flowers of the first, are used for coloring, and the dried juice of the last, constitutes *opium*. The capsules, however, of both are considered sedative and anodyne.

ORDER XXVIII.—LURIDÆ.

An order of plants whose pale and gloomy appearance, indicate their baneful and noxious qualities.

Atropa Belladonna. Hyoscyamus Niger.
Capsicum Annuum. Nicotiana Tabacum.
Datura Stramonium. Solanum Dulcamara.
Digitalis Purpurea. Strychnos Nux Vomica.

As respects medical properties, this is one of the most uniform orders in the system, each medical species being more or less poisonous.

Natural Character: — Root, principally fibrous; stem erect or climbing; leaves ovate, undulated, entire; corolla, bell-shaped, funnel-shaped, or tubular, sometimes five-cleft; stamens five or didynamous; pistil one; the seed-vessel, a berry or capsule, generally two-celled.

Medical Properties:—The whole set are more or less, narcotic, diuretic, diaphoretic, sedative and anodyne.

ORDER XXIX.—CAMPANACEÆ.

An order consisting of plants with *campanulate* or bell-shaped flowers.

Convolvulus Jalapa. Convolvulus Scammonia.

These plants have large juicy roots, which send up many twining slender stems; the leaves in the former varying, in the latter arrow-shaped; corolla bell-shaped, plaited; calyx differing; stamens five; pistil one; and the seed-vessel a capsule. In Medical Properties they are both purgative and hydragogue.

ORDER XXX.—CONTORTÆ.

This order derives its name from the corolla being twisted in the bud contrary to the course of the sun.

Cinchona Cordifolia.
Cinchona Lancifolia.
Cinchona Oblongifolia.

The three plants here mentioned, have of course, the common generic characters, and also agree in their properties and habits.

Natural Characters:—The root and stems are arborescent; leaves differing; inflorescence in large, terminal, leafy panicles; corolla funnel-shaped, plaited; calyx, somewhat globular and five-toothed; stamens five; pistil one; capsule inferior and two-celled. In Medical Properties they are tonic, astringent, stomachic and febrifuge.

ORDER XXXI.—VEPRECULÆ.

Derived from *veprecula* or little briar, and consisting of plants resembling the daphne.

Daphne Mezereum.

An ornamental shrub with a fibrous root; leaves lanceolate, sessile, entire, smooth; corolla monopetalous, tubular; four-cleft; calyx none; stamens eight; pistil one; fruit, a pulpy drupe containing one round seed. In small quantities it is diaphoretic and stimulant, and in large doses emetic.

ORDER XXXII.—PAPILIONACEÆ.

An extensive and very natural assemblage of plants, having *papilionaceous* or butter-fly shaped flowers.

Astragalus Verus.
Dolichos Pruriens.
Geoffræa Inermis.
Glycyrrhiza Glabra.
Pterocarpus Erinacea.
Pterocarpus Santalinus.
Spartium Scoparium.

Though a natural order as regards the figure of the corolla, the medical species will not be found, however, to bear such a striking uniformity.

Natural Characters:—Roots and stems indefinite; leaves ternate, pinnate, ovate; corolla papilionaceous; calyx, chiefly five-toothed; stamens diadelphous; the fruit a legume or a drupe.

Medical Properties:—The Astragalus Verus, and Glycyrrhiza Glabra, are demulcent; the Dolichos Pruriens, and Geoffræa Inermis, anthelmintic; the two Pterocarpi, astringent; and the Spartium Scoparium, astringent and diuretic.

ORDER XXXIII.—LOMENTACEÆ.

An order named from *lomentum*, a colour used by painters, because some of its plants are employed in the art of dyeing.

Acacia Catechu.	Hæmatoxylon Campechianum.
Acacia Vera.	Myroxylon Peruiferum.
Cassia Fistula.	Polygala Senega.
Cassia Senna.	Tamarindus Indica*.

These plants are not very similar in natural character or medical properties.

Natural Characters:—Roots and stems mostly shrubby or arborescent; leaves linear, elliptical, ovate, obcordate, ovato-lanceolate, pinnate, abruptly pinnate; corolla, mostly

* By some authors said to belong to the natural order *succulentæ*.

five-petalled; calyx, usually five-parted; stamens indefinite; pistil one; the fruit in all, a legume.

Medical Properties:—The Acacia Catechu and Hæmatoxylon Campechianum, are astringents; the Acacia Vera, demulcent; the two Cassiæ, laxative; the Myroxylon Peruiferum, stimulant and expectorant; the Polygala Senega, stimulant, expectorant, diaphoretic and diuretic; and the Tamarindicus Indica, laxative and refrigerant.

ORDER XXXIV.—CUCURBITACEÆ.

This order has received its name from *cucurbita*, a gourd, on account of its being constituted by plants similar to the gourd family.

Cucumis Colocynthis. Momordica Elaterium.

These plants in natural characters have trailing stems; the leaves on long petioles, rough; flowers axillary; corolla, bell-shaped, five-cleft; calyx, bell-shaped, five-toothed; stamens, monœcious; and the fruit a large berry. In medical virtues they are strong cathartics.

ORDER XXXV.—SENTICOSÆ.

So named from *sentis*, a briar, on account of its embracing the briar and bramble tribe.

Agrimonia Eupatoria.
Geum Urbanum.
Rosa Canina.
Rosa Centifolia.
Rosa Gallica.
Tormentilla Erecta.

The plants of *senticosæ* which are employed in

medicine, are all astringents, but in natural characters, they are more diversified.

In these plants we find erect stems, about two feet high, or more; leaves obovate, lyrate, oval, lanceolate, serrated; corolla four or five-petalled; calyx three, five or ten-cleft; stamens either icosandrous or dodecandrous; pistils either two or many; seeds mostly naked.

ORDER XXXVI.—POMACEÆ.

Pomaceæ from *pomum*, an apple, embracing the apple and plum tribe.

Amygdalus Communis.	Punica Granatum.
Prunus Domestica.	Pyrus Cydonia.

This is altogether a tolerable natural assemblage of trees, the medical species of which, bear some common and useful characters alike.

Natural Characters:—Root and stem are arborescent; leaves either elliptical, serrated or ovate; corolla, five-petalled; calyx five-cleft, superior or inferior; stamens icosandrous; pistils, one or five; fruit, a drupe or pome.

Medical Properties:—The Almond and Quince are demulcent; the Plum laxative; and the rind of the Pomegranate astringent.

ORDER XXXVII.—COLUMNIFERÆ.

From *columna*, a pillar, and *fero*, to bear; con-

sisting of plants, whose stamens are united in the form of a column or pillar.

Althæa Officinalis. Malva Sylvestris.

In these plants, the root is spindle-shaped; stem, branched; leaves, five or seven-lobed, roughish, alternate, petiolate; corolla, five-petalled, cordate; calyx, double; stamens, monadelphous; and the fruit, a capsule with one seed.—They are both emollient and demulcent.

ORDER XXXVIII.—TRICOCCÆ.

Consisting of plants usually with a single three-cornered capsule, of three cells, each cell containing one seed.

Croton Cascarilla. Ricinus Communis.
Croton Tiglium. Stalagmatis Cambogioides.
Euphorbia Officinarum.

These plants are very analogous in medical virtues, but not so in natural characters.

Natural Characters:—Root and stem indefinite; leaves cordate, lanceolate, lobed, ovate; corolla none, or four or five petalled; calyx indefinite; stamens monœcious, dodecandrous, or polygamous; seed-vessel mostly a three-celled capsule.

Medical Properties:—The Croton Cascarilla, is tonic; the Euphorbia Officinarum, errhine; and the other three purgative and cathartic.

ORDER XXXIX.—SILIQUOSÆ.

Embracing the plants of the tetradynamia,

consequently, they are furnished with a *silicle* or short pod, or with a *silique* or long pod.

Cardamine Pratensis.	Sinapis Alba.
Cochlearia Armoracia.	Sinapis Nigra.

The plants of this order may be considered somewhat similar both in natural characters and medical virtues.

Natural Characters:—Spindle-shaped or tuberous roots; stem erect; leaves pinnated, lance-shaped, lobed; inflorescence a corymb or cluster; corolla, cruciform; calyx, four-leaved, spreading; stamens tetradynamous; and the seed-vessel a silique or silicle.

Medical Properties:—The Cardamine Pratensis, is stimulant, diaphoretic and anti-spasmodic; the Cochlearia Armoracia, stimulant and diuretic; and the two species of Sinapis, stimulant, diuretic, emetic and rubefacient.

ORDER XL.—PERSONATÆ.

Derived from *persona*, a mask, from the flowers being furnished with an irregular, gaping or grinning petal, in figure somewhat resembling the snout of an animal.

Gratiola Officinalis.	Veronica Beccahunga.
Scrophularia Nodosa.	Viola Odorata.

The plants in question, are neither much alike in general characters, or in medical properties.

Natural Characters:—Roots and stems indefinite; leaves

obovate, cordate, ovate; corolla four or five-petalled; calyx, four or five-parted; stamens two to ten; pistil one; fruit a capsule.

Medical Properties:—The Gratiola Officinalis, is anthelmintic, purgative, and diuretic; the Scrophularia Nodosa is externally anodyne and repellant; the Veronica Beccabunga, a supposed antiscorbutic; and the Viola Odorata, slightly laxative.

ORDER XLI.—ASPERIFOLIÆ.

The plants of this order are called *rough-leaved* plants, because of their usual rough or harsh habit.

Anchusa Tinctoria.

A perennial plant, with a woody fibrous root; round, hairy, rough, branched stem; purple flowers in clusters; a funnel-shaped corolla, with a five toothed expansion; a persistent five-cleft calyx; five stamens and one pistil.

ORDER XLII.—VERTICILLATÆ.

Consists of herbaceous vegetables, having four naked seeds, and the flowers placed in whorls round the stalks.

Hyssopus Officinalis.
Lavandula Spica.
Marrubium Vulgare.
Melissa Officinalis.
Mentha Piperita.
Mentha Pulegium.
Mentha Viridis.
Origanum Marjorana.
Origanum Vulgare.
Rosmarinus Officinalis.
Salvia Officinalis.
Teucrium Chamædrys.
Teucrium Marum.

The medicinal verticillatæ, do not bear very natural characters in common, and the medical virtues vary more or less.

Natural Characters:—The root is either woody or fibrous; stem mostly shrubby; leaves elliptical, linear, orbicular, lanceolate, ovate, lobed; inflorescence a spike, whorl or panicle; corolla, funnel-shaped, tubular, labiate; calyx, mostly tubular and five-toothed.

Medical Properties:—The Hyssopus Officinalis, is stimulant and expectorant; Lavandula Spica, Rosmarinus Officinalis and Salvia Officinalis, stimulant and tonic; Marrubium Vulgare, and Melissa Officinalis, stomachic and diuretic; the three Mints and two Marjorams, stomachic and carminative; the Teucrium Chamædrys, tonic and stomachic; and Teucrium Marum, sternutatory.

ORDER XLIII.—DUMOSÆ.

From *dumus*, a bush, including plants of the shrub and tree kind, thick and bushy, rising from six to thirty, and even forty feet.

Amyris Elemifera.	Rhamnus Catharticus.
Amyris Gileadensis.	Rhus Toxicodendron.
Copaifera Officinalis.	Sambucus Nigra.

In natural affinities we cannot discover these plants to correspond much; but in medical virtues there is a great similarity.

Natural Characters:—Root branched; stem shrubby; leaves pinnate, ovate, or otherwise; inflorescence, a corymb,

raceme, spike, or cyme; corolla, four or five petalled, or five or six cleft; calyx none, or four toothed, five parted; stamens five, eight, nine or ten; seed-vessel, a drupe, a legume, a capsule, or a berry.

Medical Properties:—The three first are stimulant and more or less diuretic; the Rhamnus is cathartic; the Rhus Toxicodendron, stimulant and narcotic; and the berries of the Sambucus, aperient, flowers diaphoretic, and the bark purgative.

ORDER XLIV.—SEPIARIÆ.

From *sepes*, a hedge, the plants of which, from their use and habits, are particularly calculated for hedges.

Fraxinus Ornus. Olea Europea.

These are both native trees of the south of Europe; the leaves of the former are pinnate, of the latter lanceolate; inflorescence a panicle or cluster; corolla none, or four parted; calyx none, or four cleft; seed-vessel, a capsule or drupe.

ORDER XLV.—UMBELLATÆ.

This is a very true and natural order of plants furnished with *umbels;* though all plants which bear umbels do not belong to it, but only those with five stamens, two pistils, and two seeds.

Anethum Fœniculum.
Anethum Graveolens.
Angelica Archangelica.
Daucus Carota.
Daucus Sylvestris.
Eryngium Maritimum.

Apium Petroselinum.
Bubon Galbanum.
Carum Carui.
Conium Maculatum.
Coriandrum Sativum.
Cuminum Cyminum.
Ferula Assafœtida.
Heracleum Gummiferum.
Pastinaca Opoponax.
Pimpinella Anisum.
Sium Nodiflorum.

The Medical Plants of this order, are upon the whole, considerably related to each other.

Natural Characters:—Root principally fusiform and fibrous; stem, herbaceous; leaves, indefinite, generally alternate, and repeatedly compound; corolla, principally five petalled; calyx, mostly five-leaved; stamens five; two pistils, and two seeds.

Medical Properties:—The seeds of the Anethum Fœniculum, Anethum Graveolens, Angelica Archangelica, Carum Carui, Coriandrum Sativum, Daucus, and Pimpinella Anisum, are carminative, and more or less diuretic; the gum of the Bubon Galbanum, Ferula Assafœtida, and Heracleum Gummiferum, is anti-spasmodic, deobstruent and expectorant; the Conium Maculatum, narcotic; the Cuminum Cyminum, anti-spasmodic; the Pastinaca Opoponax, anti-spasmodic and emmenagogue; the Eryngium Maritimum, diuretic and expectorant; and the Sium Nodiflorum, diuretic and stimulant.

ORDER XLVI.—HEDERACEÆ.

Hederaceæ from *hedera*, ivy, consisting of both herbaceous and shrubby plants, most of which, have creeping branches, which attach themselves by roots or tendrils, to other bodies.

Vitis Vinifera.

A native tree of Armenia and other temperate regions; root arborescent; stem climbing; leaves, lobed, sinuated, serrate, alternate; inflorescence a bunch; corolla, greenish white; calyx, very minute; fruit a berry.

ORDER XLVII.—STELLATÆ.

This order is named from the leaves of most of the plants which compose it, being placed four, six, or eight together, in the form of a star or *stella*, round the stem.

Rubia Tinctorum. Spigelia Marilandica.

These plants have annual stems, quadrangular; leaves elliptical, or ovate-lanceolate; corolla, monopetalous, bell-shaped or funnel-shaped; stamens, four or five; pistil one; seed-vessel, a berry or capsule. The first is emmenagogue and astringent, and the second anthelmintic.

ORDER XLVIII.—AGGREGATÆ.

Embracing those plants which are furnished with aggregate flowers, that is, with flowers consisting of a number of partial flowers, each of which have a proper and common calyx.

Cephaelis Ipecacuanha. Valeriana Officinalis.

Two perennials, with fibrous, branched roots; leaves, ovate or connate; inflorescence, a tuft or corymb; stamens three or five; pistil one; seed-vessel, a berry or capsule. The first, emetic, sudorific and expectorant; the second, antispasmodic, tonic, and emmenagogue.

ORDER XLIX.—COMPOSITÆ.

A very extensive order of plants having compound flowers, that is, flowers with many florets enclosed in one common calyx.

Anthemis Nobilis.	Centaurea Benedicta.
Anthemis Pyrethrum.	Inula Helenium.
Arctium Lappa.	Lactusa Sativa.
Arnica Montana.	Lactusa Virosa.
Artémisia Abrotanum.	Leontodon Taraxacum.
Artemisia Absinthium.	Solidago Virga Aurea.
Artemisia Maritima.	Tanacetum Vulgare.
Artemisia Santonica.	Tussilago Farfara.

These plants are not strikingly similar, though many are alike both in their natural characters and quality of virtue.

Natural Characters:—Root, principally fibrous and woody; stem, herbaceous; leaves, indefinite; inflorescence, of course, compound.

Medical Properties:—The Anthemis Nobilis is considered tonic and stomachic; the Anthemis Pyrethrum, sialagogue; the Arctium Lappa, aperient, sudorific and diuretic; the Arnica Montana, narcotic, stimulant, diaphoretic, and emmenagogue; the family Artemisia and Centaurea, tonic and stomachic; the Inula Helenium, expectorant, diuretic and emmenagogue; the Lactusæ, narcotic and diaphoretic; the Leontodon Taraxacum, aperient, diuretic and resolvent; the Solidago Virga Aurea, astringent, tonic and diuretic; the Tanacetum Vulgare, tonic, deobstruent and anthelmintic; and the Tussilago Farfara, demulcent and expectorant.

ORDER L.—AMENTACEÆ

Including a tribe of plants which have the species of calyx, called an *amentum* or catkin.

Pistacia Lentiscus.	Quercus Robur.
Pistacia Terebinthus.	Salix Alba.
Quercus Infectoria.	Salix Caprea.
Quercus Pedunculata.	Salix Fragilis.

The trees of this order are more or less alike each other, both in natural characters and remedial virtues.

Natural Characters: — Roots and stems arborescent; leaves alternate; inflorescence, monœcious or diœcious.

Medical Properties:—The resins of the two Pistaciæ are stimulant and diurectic; and the production of the Quercus and Salix tribe, tonic and astringent.

ORDER LI.—CONIFERÆ.

Consisting of a selection of plants, which have for their seed-vessel, a *strobile* or *cone.*

Juniperus Communis.	Pinus Balsamea.
Juniperus Lycia.	Pinus Larix.
Juniperus Sabina.	Pinus Sylvestris.
Pinus Abies.	

The Medical Plants under consideration, are somewhat different both in natural characters,

and the peculiar property of the parts used in medicine.

Natural Characters:—In the genus Juniper, the *male* flower is an ovate amentum, the calyx a scale, no corolla, three stamens; the *female* flower has a three-parted calyx, three petals, three styles, producing an irregular three-sided berry, with the three tubercles of the calyx. In the Pinus genus, the *male* flower has no corolla, a four-leaved calyx, many stamens, and naked anthers; the *female* flower has no corolla; the calyx, a strobile, with a two flowered scale, pistil one, producing a species of nut, with a membranous wing.

Medical Properties:—The berries of the Juniperus Communis, are diuretic and carminative; the olibanum or resin of the Juniperus Lycia, stimulant; the leaves of the Juniperus Sabina, stimulant, diaphoretic, emmenagogue, anthelmintic and escharotic; and the products of the different firs, more or less stimulant and diuretic.

ORDER LII —COADUNATÆ.

From *coadunare*, to join—an order of plants established on the general appearance of the seed-vessels, which are numerous, being slightly *joined* below, so as to form a single fruit, the parts of which, however, are easily separated.

ORDER LIII.—SCABRIDEÆ.

Derived from *scaber*, rough — consisting of plants with rough leaves, somewhat resembling the *asperifoliæ*, only much rougher.

Dorstenia Contrayerva.	Morus Nigra.
Ficus Carica.	Ulmus Campestris.
Humulus Lupulus.	

These plants are equally variable in natural characters and medicinal virtues.

Natural Characters:—Root and stem, mostly arborescent; leaves, irregular, cordate, serrate; corolla, none; calyx, indefinite; stamens, variable; fruit, a capsule, cone, or otherwise.

Medical Properties:—The root of the Dorstenia Contrayerva is tonic, stimulant, and sudorific; the fruit of the Ficus Carica, demulcent and suppurative; the Humulus Lupulus, anodyne, narcotic, and diuretic; the berries of the Morus Nigra, laxative; and the bark of the Ulmus Campestris, tonic, alterative, and diuretic.

ORDER LIV.—MISCELLANEÆ.

This order consists of miscellaneous plants, or such genera as are not connected together by very numerous relations.

ORDER LV.—LVI.—LVII.—LVIII.

The four last orders, viz. *filices* or ferns, *musci* or mosses, *algæ* or flags, and *fungi* or mushrooms, are natural divisions of the class *cryptogamia* in the Artificial System, therefore do not require another explanation.

PLANTÆ DUBII ORDINIS.

Linnæus found numerous genera which he could not reduce to any of the foregoing orders; he has, in consequence, thrown them into an appendix, as plants of an uncertain or doubtful order.

THE

TERMINALOGY

OF

BOTANY.

PART IV.

EXPLAINING THE MOST USEFUL AND PRACTICAL TERMS EMPLOYED IN DESCRIPTIVE BOTANY, AS INTENDED TO BE UNDERSTOOD IN MEDICAL WRITINGS.

THE

TERMINALOGY

OF

BOTANY

Abrupt, truncated:—When the extremity of a part is apparently cut off transversely.

Abruptly-pinnate:—When a compound leaf does not have a terminating leaflet or tendril.

Acerose, acicular, or needle-shaped:—Applied to a leaf when it is linear and evergreen, sharp and rigid.

Acinaciform, scimitar-shaped:—Having one edge thick and straight, the other thin and curved.

Acotyledonous:—Plants whose seeds are either without, or with indistinct lobes.

Acuminate, sharp-pointed:—When terminating in a point.

Adnate, adhering:—Applied to parts which appear to grow together.

Alternate:—When not in pairs, but given off one after the other.

Angled:—When a circumference has considerable projections, which are not lobular.

Appendiculated, appendaged:—Signifying something in particular attached to a part.

Arborescent, tree-like:—Partaking of a woody nature.

Arillus, tunic:—Is either a complete or partial covering of a seed, fixed to its base only, and more or less loosely or closely enveloping its other parts.

Arrow-shaped, sagittate:—Resembling the point of an arrow.

Articulated:—Applied to parts when they are joined together, or divided into parts by peculiarity of structure.

Awl-shaped, subulate:—Thick at the base, and gradually attenuated to a sharp point.

Awn, arista:—A terminating spine or appendage.

Axilla:—Applied to the point of junction of a branch to the stem, or of a leaf to the stem or branch.

Axillary:—Situated or issuing from an axilla.

Bigeminate, twice-paired: — In compound leaves, when near the common leaf-stalk there is a single pair of secondary leaf-stalks, each of which support a pair of opposite leaflets.

Bilabiate:—Having two lips.

Bilocular:—Having two cells.

Binate:—Applied to a compound leaf consisting of two leaflets only, inserted at the same point on one leaf-stalk.

Bipinnate:—In compound leaves, when the secondary leaf-stalks are arranged in pairs on the common leaf-stalk, and each secondary leaf-stalk is pinnate.

Biternate:—In compound leaves, when the common foot-stalk supports three secondary leaf-stalks on its apex, and each of these support three leaflets.

Caducous:—Applied to leaves falling off before the end of the summer; to corollas, continuing only until expanded; and to calyces, falling off at the opening of the flower.

Calycine:—Attached or belonging to the calyx.

Calyculate:—Applied to a calyx, when there is a lesser one at the base of the great one.

Capillary:—Applied to parts when they are long, fine, and flexible.

Carinated:—Expressive of leaves and petals, when the back is longitudinally prominent, like the keel of a boat.

Cauline:—Springing from or attached to the stem.

Channelled:—Applied to leaves, stalks, or petioles, having grooves or longitudinal furrows on their surface.

Ciliated:—When parts are covered with soft parallel hairs, not closely set together.

Cirrose, circinate:—tipped with a cirrus or tendril.

Cleft:—Divided into parts, therefore said to be two-cleft, four-cleft, and so on.

Cloven:—When the margin or segments of any part are nearly straight lines.

Clubbed:—When parts are thicker towards their extremities than in the centre.

Conjugate:—Applied to leaves consisting of one pair of leaflets.

Connate:—When leaves are united at their base, so as to appear but one leaf.

Cordate, heart-shaped:—When a leaf is hollowed at the base into two lobes, and pointed at the apex.

Coriaceous: —When a part is thick, tough, and elastic.

Crenate:—When the margin of a leaf is notched in round forms, not directed to either end of the leaf.

Crenulated:—When the crenatures are very shallow, and at the same time perfect.

Cuculate, hooded:—When one part grows over another, so as to form a hood or covering.

Cuspidate, mucronate:—Terminating in a rigid spine.

Deciduous:—Applied to parts which fall off after they have performed the offices for which they are destined.

Decurrent:—When the flat part of a leaf runs down the stem or branch.

Decussated:—Parts in pairs alternately crossing each other.

Dichotomous:—Divided into two branches.

Dicotyledonous:—Plants whose seeds have two or more cotyledons.

Digitate:—When several, usually seven leaflets, proceed from the summit of a common footstalk, and have the appearance of fingers.

Distichous:—Applied to stems, leaves, &c. when they spread in two horizontal directions.

Dolabriform, hatchet-shaped:—Leaves compressed, with a very prominent dilated keel and a cylindrical base.

Elliptical, oval:—When a leaf is twice as long as it is broad, and nearly equally rounded at the extremities.

Emarginate:—When there is nearly a triangular notch in the summit of a leaf.

Embracing:—When leaves clasp the stem by their bases.

Ensiform, sword-shaped:—When a leaf is long, tapering to a point, very thin on both edges, and slightly curved.

Entire:—The margin of any part being perfectly free of notches or irregularities.

Erose:—Irregularly notched, having the appearance of being gnawed.

Fasciculated:—When several leaves or flowers spring from the same point.

Filiform, thread-shaped:—Having a thread-like appearance.

Follicle:—A membranous seed-vessel of one valve and one cell.

Furrowed:—Having several linear depressions.

Geniculated:—Expressive of parts bent like the knee.

Gibbous:—When both parts of a side are convex.

Glabrous:—Applied to stems and leaves, when shining and perfectly smooth.

Glaucous:—Being of a sea-green shade in color.

Globose:—Of a rounded or globular form.

Hastate, halberd-shaped:—When the sides of a leaf are protruded into two lateral spreading points or lobes near the base.

Herbaceous:—Stems which die annually down to the root.

Hirsute:—When the surface of any part is covered with longish hairs.

Hispid:—When the hairs are short and stiff.

Imbricated:—Parts placed one over another like tiles.

Incurvated:—Signifying parts turned inwards.

Inferior:—Applied to the corolla, when its receptacle is below the germen; to the calyx, when its base is below the germen; and to the germen, when it is placed beneath the calyx or corolla.

Interruptedly:—With compound leaves, when the principal leaflets are intermixed with smaller ones.

Irregular:—When there is no regularity of structure, or uniformity in the distribution of parts.

Labiate:—When parts assume the appearance of lips.

Laciniated:—When cut into numerous irregular divisions, which are termed segments.

Lanate:—When a part is covered with soft hairs, and have a woolly aspect.

Lanceolate, lance-shaped:—Of a narrow oblong form, tapering towards the end.

Linear:—Of equal breadth from the base to the apex.

Lingulate, tongue-shaped:—Of a thick oblong blunt figure in the shape of a tongue.

Lobed:—The segments of any part being rounded.

Lyrate, lyre-shaped:—Divided transversely into several segments, which increase towards the extremity.

Monocotyledonous:—Plants whose seeds have only one lobe or cotyledon.

Monophyllous:—When a calyx consists of only one leaf.

Muricated:—Covered with sharp points.

Multifid:—The margin of round leaves, cut from the apex almost to the base, without having any great intermediate sinuses.

Naked:—Applied to flowers without calyces, to stems without leaves, and to leaves without hair or down.

Nerved:—When the fibres or vessels of leaves are peculiarly prominent.

Obcordate:—Heart-shaped leaves when rounded at the apex.

Oblique:—When one part of the leaf is vertical, the other horizontal.

Oblong:—Three or four times longer than broad.

Obovate:—Egg-shaped, with the broad end uppermost.

Obtuse:—When any part forms the segment of a circle and is rounded.

Ovate:—When the length of a leaf is greater than the breadth, with both extremities rounded, but the base much broader than the apex.

Ovate-lanceolate:—Partaking of the ovate and lanceolate figure.

Palmated:—When a leaf is divided nearly down to the middle into several segments.

Panduræform, fiddle-shaped:—oblong, broad at the two extremities and contracted in the middle.

Papillose:—Covered with soft tubercles or dots.

Pectinate:—When the segments of a leaf are very narrow, linear, and parallel, like the tooth of a comb.

Peltate:—When the petiole is inserted into the disk of a leaf.

Pendent:—When the whole leaf droops.

Perfoliate:—When the stem runs through the leaf.

Permanent:—Applied to the calyx and corolla when they continue until the fruit is ripe.

Persistent:—Lasting many years and always green.

Pinnate:—When several leaves proceed laterally from one foot-stalk.

Pinnatifid:—Applied to parts cut transversely into deep oblong parallel segments.

Plaited:—Parts lying in folds like a fan

Plumous:—Having a feathery appearance.

Procumbent:—Lying on the surface of the ground.

Polycotyledonous:—Plants whose seeds have more than two lobes or cotyledons. This, however, is an nnnecessary term, since the word *dicotyledonous* embraces the same meaning.

Quadripartite:—When a laciniated leaf is divided into five parts.

Quinate:—When there are five leaflets attached to the apex of the petiole.

Quinquifid:—Having five clefts.

Radical: Situated on, or proceeding immediately from the root.

Reniform, kidney-shaped:—When the apex of a leaf is broad and rounded, and the base deeply hollowed out in the shape of a kidney.

Repand:—Bordered with numerous angles and segments of circles alternately.

Resupinate:—When the surface of a leaf, which is commonly undermost, is found uppermost.

Retuse:—When the apex is obtuse, with a broad shallow notch in the middle.

Rugose:—Applied to leaves with inequalities rising above the veins.

Runcinate:—When the expansion of a leaf is deeply cut into many transverse acute-angled segments, the points of which tend towards the base of the leaf.

Segments:—The division of leaves, corollas and calyces.

Serrated, sawed:—When the margin of a leaf has teeth like a saw.

Serrulated:—When the margin is minutely serrated.

Sheathing:—When leaves embrace the stem with their bases.

Sinuated:—When the margin of a leaf is cut, as it were, into roundish scollops.

Solitary:—Parts which stand singly or alone.

Spatulate:—When a leaf is round at the apex and gradually tapers towards the base.

Striated:—Marked with parallel lines

Sulcate:—Impressed with deep parallel lines.

Superior:—Applied to the corolla when its receptacle is above the germen; to the calyx when it is above the germen; and to the germen when it is included in the corolla or calyx.

Tergeminate:—When a compound leaf resembles the bigeminate in its foot-stalk divisions, and has besides a third pair of leaflets at the point where the secondary leaf-stalks originate.

Terminal:—Applied to parts when they are at the end of a branch or stem.

Ternate:—When leaves stand by threes round the stem.

Tomentose:—Covered with a downy pubescence.

Trichotomous:—Divided into three branches.

Tricuspid:—Terminating in three rigid spines.

Trifid:—When a cloven leaf has three clefts or divisions.

Tripartite:—A laciniated leaf divided into three parts.

Tripinnate:—In a compound leaf when along the sides of a common petiole, there are secondary foot-stalks supporting a ternary set, which are pinnate.

Triternate:—In a compound leaf, when the common petiole supports on its apex three secondary petioles, which each support three ternary foot-stalks, and on every one of these, three leaflets.

Trowel-shaped, deltoid:—When a leaf has three angles, and represents the Greek letter Delta.

Unarmed:—Devoid of spines or thorns.

Undulated:—Margins waved obtusely up and down.

Uncinate:—When any part is curved so as to resemble a hook.

Unequal:—Leaves having two halves of unequal size.

Villous:—Parts covered with long soft hairs.

Viscid:—Parts covered with a clammy juice.

Wedge-shaped, cuneiform:—Broad at the base, and tapering towards the point.

Whorled:—Verticillated, or placed around the stem.

MISCELLANEOUS SUBJECTS.

PART V.

CONSISTING OF A GENERAL ARRANGEMENT OF MEDICAL PLANTS; A TABLE OF ENGLISH AND SYSTEMATIC NAMES; A GENERAL INDEX; AND AN INDEX TO THE PLATES.

IN THE FOLLOWING ARRANGEMENT, THE READER WILL FIND A FEW ABBREVIATIONS USED FOR THE DISTINCTION OF PLANTS, VIZ.—

A. annual. *B. biennial.* P. *perennial.* S. *shrub.*

T. *tree.*

AN ARRANGEMENT

SHEWING THEIR LINNÆAN OR SYSTEMATIC NAMES; THEIR

THEIR CLASS AND ORDER ACCORDING TO THE LINNÆAN

PLANTS.

	Linnæan Name.	*English Name.*	*Flowering.*
1	Acacia Catechu	Medicinal Acacia	June
2	Acacia Vera	Egyptian Thorn	July
3	Aconitum Napellus	Aconite or Monkshood	June
4	Acorus Calamus	Sweet Flag	May
5	Æsculus Hippocastan.	Horse Chesnut	May
6	Agrimonia Eupatoria	Common Agrimony	June
7	Allium Cepa	Common Onion	June
8	Allium Porrum	Common Leek	April
9	Allium Sativum	Common Garlic	July
10	Aloe Vulgaris	Hepatic Aloe	May
11	Aloe Spicata	Socotorine Aloe	May
12	Althæa Officinalis	Marsh Mallow	June
13	Amygdalus Communis	Almond-tree	March
14	Amyris Elemifera	Elemi-tree	—
15	Amyris Gileadensis	Balm of Gilead	June
16	Anchusa Tinctoria	Common Alkanet	June
17	Anethum Fœniculum	Sweet Fennel	July

OF MEDICAL PLANTS.

ENGLISH DENOMINATIONS; THEIR TIME OF FLOWERING; SYSTEMS; THEIR NATIVE SOIL; AND DISTINCTION OF

Class.	*Order.*	*Natural Order.*	*Soil.*	*Kd.*
1 Polygamia	Monœcia	Lomentaceæ	E. Indies	T
2 Polygamia	Monœcia	Lomentaceæ	Egypt	T
3 Polyandria	Trigynia	Multisiliquæ	Siberia	P
4 Hexandria	Monogynia	Piperitæ	Europe	P
5 Heptandria	Monogynia	Trihilatæ	Asia	T
6 Dodecandria	Digynia	Senticosæ	Britain	P
7 Hexandria	Monogynia	Spathaceæ	Spain	B
8 Hexandria	Monogynia	Spathaceæ	Switz.	B
9 Hexandria	Monogynia	Spathaceæ	Sicily	P
10 Hexandria	Monogynia	Coronariæ	Barbado.	P
11 Hexandria	Monogynia	Coronariæ	G. Hope	P
12 Monadelphia	Polyandria	Columniferæ	Britain	P
13 Icosandria	Monogynia	Pomaceæ	Barbary	T
14 Octandria	Monogynia	Dumosæ	Arabia	T
15 Octandria	Monogynia	Dumosæ	Carolina	T
16 Pentandria	Monogynia	Asperifoliæ	Europe	P
17 Pentandria	Digynia	Umbellatæ	Europe	P

	Linnæan Name.	*English Name.*	*Flowering.*
18	Anethum Graveolens	Common Dill	June
19	Angelica Archangelica	Garden Angelica	June
20	Anthemis Nobilis	Common Chamomile	Aug.
21	Anthemis Pyrethrum	Pellitory of Spain	June
22	Apium Petroselinum	Common Parsley	June
23	Arbutus Urva Ursi	Bear's Whortleberry	June
24	Arctium Lappa	Common Burdock	July
25	Aristolochia Serpentaria	Virginian Snake-root	May
26	Arnica Montana	Mountain Arnica	July
27	Artemisia Abrotanum	Southernwood	May
28	Artemisia Absinthium	Common Wormwood	Aug.
29	Artemisia Maritima	Sea Wormwood	Aug.
30	Artemisia Santonica	Tartarian Southernw.	Sept.
31	Arum Maculatum	Wake Robin	May
32	Asarum Europœum	Asarabacca	May
33	Aspidium Filix Mas	Male Fern	June
34	Astragalus Verus	Tragacanth	July
35	Atropa Belladonna	Deadly Nightshade	June
36	Avena Sativa	Common Oats	July
37	Boletus Ignarius	Agaric of the Oak	—
38	Bubon Galbanum	Galbanum	June
39	Cephaelis Ipecacuhana	Ipecacuhana	Dec.
40	Canella Alba	White Canella	—
41	Capsicum Annuum	Cayenne Pepper	June
42	Cardamine Pratensis	Cuckoo Flower	April
43	Carum Carui	Common Carraway	May
44	Cassia Fistula	Purging Cassia	June
45	Cassia Senna	Egyptian Senna	July
46	Centaurea Benedicta	Blessed Thistle	June
47	Chironia Centaurium	Common Centaury	July
48	Cinchona Cordifolia	Yellow-bark'd Cinchona	May
49	Cinchona Lancifolia	Pale-barked Cinchona	May

	Class.	*Order.*	*Natural Order.*	*Soil.*	*Kd.*
18	Pentandria	Digynia	Umbellatæ	Europe	P
19	Pentandria	Digynia	Umbellatæ	Britain	B
20	Syngenesia	Superflua	Compositæ	Britain	P
21	Syngenesia	Superflua	Compositæ	Arabia	B
22	Pentandria	Digynia	Umbellatæ	Sardinia	B
23	Decandria	Monogynia	Bicornes	Europe	S
24	Syngenesia	Æqualis	Compositæ	Britain	P
25	Gynandria	Hexandria	Sarmentaceæ	Virginia	P
26	Syngenesia	Superflua	Compositæ	Europe	P
27	Syngenesia	Superflua	Compositæ	Europe	S
28	Syngenesia	Superflua	Compositæ	Britain	P
29	Syngenesia	Superflua	Compositæ	Britain	P
30	Syngenesia	Superflua	Compositæ	Siberia	S
31	Monœcia	Polyandria	Piperitæ	Britain	P
32	Dodecandria	Monogynia	Sarmentaceæ	Britain	P
33	Cryptogamia	Filices	Filices	Britain	P
34	Diadelphia	Decandria	Papilionaceæ	Persia	S
35	Pentandria	Monogynia	Luridæ	Britain	P
36	Triandria	Digynia	Gramina	Asia	A
37	Cryptogamia	Fungi	Fungi	Europe	P
38	Pentandria	Digynia	Umbellatæ	G. Hope	P
39	Pentandria	Monogynia	Aggregatæ	Brazil	P
40	Dodecandria	Monogynia	Holeraceæ	W. Indies	T
41	Pentandria	Monogynia	Luridæ	S Ameri.	A
42	Tetradynamia	Siliquosa	Siliquosæ	Britain	P
43	Pentandria	Digynia	Umbellatæ	Britain	B
44	Decandria	Monogynia	Lomentaceæ	E Indies	T
45	Decandria	Monogynia	Lomentaceæ	Egypt	A
46	Syngenesia	Frustranea	Compositæ	Spain	A
47	Pentandria	Monogynia	Rotaceæ	Britain	A
48	Pentandria	Monogynia	Contortæ	Quito	T
49	Pentandria	Monogynia	Contortæ	Ayavaca	T

	Linnæan Name.	*English Name.*	*Flowering.*
50	Cinchona Oblongifolia	Red-barked Cinchona	June
51	Citrus Aurantium	Seville Orange	May
52	Citrus Medica	Lemon-tree	May
53	Cocculus Palmatus	Calumba-tree	—
54	Cochlearia Armoracia	Horse-radish	June
55	Cocos Butyracea	Mackaw-tree	May
56	Colchicum Autumnale	Meadow Saffron	Sept.
57	Conium Maculatum	Spotted Hemlock	June
58	Convolvulus Jalapa	Jalap Plant	Aug.
59	Convolv. Scammonia	Scammony Plant	July
60	Copaifera Officinalis	Copaiba Balsam Tree	—
61	Coriandrum Sativum	Common Coriander	June
62	Crocus Sativus	Common Saffron	Sept.
63	Croton Cascarilla	Cascarilla Tree	July
64	Croton Tiglium	Purging Croton	Sept.
65	Cucumis Colocynthis	Bitter Cucumber	May
66	Curcuma Zedoaria	Common Zedoary	April
67	Cuminum Cyminum	Common Cumin	June
68	Cusparia Febrifuga	Cusparia or Augustura	May
69	Daphne Mezereum	Mezereon	March
70	Datura Stramonium	Thorn-apple	July
71	Daucus Carota	Garden Carrot	June
72	Daucus Sylvestris	Wild Carrot	June
73	Delphinium Staphisag.	Stavesacre	June
74	Dianthus Caryophyllus	Clove Pink	July
75	Digitalis Purpurea	Purple Foxglove	June
76	Dolichos Pruriens	Cow-itch or Cowhage	Sept.
77	Dorstenia Contrayerva	Contrayerva Plant	May
78	Elettaria Cardamomum	Cardamom Plant	—
79	Eryngium Maritimum	Sea Holly or Eryngo	July
80	Eugenia Caryophyllata	Clove Tree	—
81	Euphorbia Officinarum	Officinal Spurge	June

	Class.	*Order.*	*Natural Order.*	*Soil.*	*Kd.*
50	Pentandria	Monogynia	Contortæ	Andes	T
51	Polyadelphia	Icosandria	Bicornes	Asia	T
52	Polyadelphia	Icosandria	Bicornes	Asia	T
53	.....	.....	.....	Africa	T
54	Tetradynamia	Siliculosa	Siliquosæ	Britain	P
55	Monœcia	Hexandria	Palmæ	Brazil	T
56	Hexandria	Trigynia	Spathaceæ	Britain	P
57	Pentandria	Digynia	Umbellatæ	Britain	B
58	Pentandria	Monogynia	Campanaceæ	S Ameri.	P
59	Pentandria	Monogynia	Campanaceæ	Syria	P
60	Decandria	Monogynia	Dumosæ	Brazils	T
61	Pentandria	Digynia	Umbellatæ	Italy	A
62	Triandria	Monogynia	Ensatæ	Britain	P
63	Monœcia	Monadelphia	Tricoccæ	Bahamas	T
64	Monœcia	Monadelphia	Tricoccæ	Molucca	T
65	Monœcia	Monadelphia	Cucurbitaceæ	G. Hope	A
66	Monandria	Monogynia	Scitamineæ	E Indies	P
67	Pentandria	Digynia	Umbellatæ	Egypt	A
68	Pentandria	Monogynia	.....	America	T
69	Octandria	Monogynia	Vepreculæ	Britain	S
70	Pentandria	Monogynia	Luridæ	Egypt	A
71	Pentandria	Digynia	Umbellatæ	Britain	B
72	Pentandria	Digynia	Umbellatæ	Britain	B
73	Polyandria	Trigynia	Multisiliquæ	S Europe	B
74	Decandria	Digynia	Caryophylleæ	Italy	P
75	Didynamia	Angiospermia	Luridæ	Britain	B
76	Diadelphia	Decandria	Papilionsceæ	India	P
77	Tetrandria	Monogynia	Scabrideæ	W. Indies	P
78	Monandria	Monogynia	Scitamineæ	India	P
79	Pentandria	Digynia	Umbellatæ	Britain	P
80	Icosandria	Monogynia	Hesperideæ	Molucca.	T
81	Dodecandria	Trigynia	Tricoccæ	Africa	P

Linnæan Name.	*English Name.*	*Flowering.*
82 Ferula Assafœtida	Assafœtida Plant	—
83 Ficus Carica	Fig Tree	June
84 Fraxinus Ornus	Flowering Ash	May
85 Fucus Vesiculosus	Bladder Fucus	Spring
86 Gentiana Lutea	Yellow Gentian	June
87 Geoffræa Inermis	Cabbage Tree	—
88 Geum Urbanum	Common Avens	May
89 Glycyrrhiza Glabra	Common Liquorice	Aug.
90 Gratiola Officinalis	Officinal Hedge Hyssop	June
91 Guaiacum Officinale	Officinal Guaiacum	—
92 Hæmatoxylon Campe.	Logwood Tree	March
3 Helleborus Fœtidus	Stinking Hellebore	March
94 Helleborus Niger	Black Hellebore	Dec.
95 Heracleum Gummifer.	Ammoniacum Plant	June
96 Hordeum Distichon	Common Barley	June
97 Humulus Lupulus	Common Hop	July
98 Hyoscyamus Niger	Black Henbane	July
99 Hyssopus Officinalis	Common Hyssop	—
100 Inula Helenium	Elecampane	July
101 Iris Florentina	Florentine Iris	May
102 Juniperus Communis	Common Juniper	May
103 Juniperus Lycia	Lycian Juniper	May
104 Juniperus Sabina	Savine	May
105 Krameria Triandra	Medical Rhatany	—
106 Lactusa Sativa	Garden Lettuce	June
107 Lactusa Virosa	Strong-scented Lettuce	Aug.
108 Laurus Camphora	Camphor Laurel	—
109 Laurus Cassia	Cassia Laurel	July

	Class.	*Order.*	*Natural Order.*	*Soil.*	*Kd.*
82	Pentandria	Digynia	Umbellatæ	Persia	P
83	Polygamia	Dicœcia	Scabrideæ	Persia	T
84	Polygamia	Dicœcia	Sepiariæ	Italy	T
85	Cryptogamia	Algæ	Algæ	Britain	P
86	Pentandria	Digynia	Rotaceæ	Alps, &c.	P
87	Diadelphia	Decandria	Papilionaceæ	Jamaica	T
88	Icosandria	Polygynia	Senticosæ	Britain	P
89	Diadelphia	Decandria	Papilionaceæ	Europe	P
90	Diandria	Monogynia	Personatæ	Europe	P
91	Decandria	Monogynia	Gruinales	Jamaica	T
92	Decandria	Monogynia	Lomentaceæ	S. Amer.	T
93	Polyandria	Polygynia	Multisiliquæ	Britain	P
94	Polyandria	Polygynia	Multisiliquæ	Austria	P
95	Pentandria	Digynia	Umbellatæ	Africa	S
96	Triandria	Digynia	Gramina	Tartary	A
97	Dicœcia	Pentandria	Scabrideæ	Britain	P
98	Pentandria	Monogynia	Luridæ	Britain	A
99	Didynamia	Gymnospermia	Verticillatæ	Siberia	P
100	Syngenesia	Superflua	Compositæ	Britain	P
101	Triandria	Monogynia	Ensatæ	Europe	P
102	Dicœcia	Monadelphia	Coniferæ	Britain	S
103	Dicœcia	Monadelphia	Coniferæ	S. Europe	S
104	Dicœcia	Monadelphia	Coniferæ	Levant	S
105	Tetrandria	Monogynia	.....	Java	—
106	Syngenesia	Æqualis	Compositæ	Europe	B
107	Syngenesia	Æqualis	Compositæ	Britain	B
108	Enneandria	Monogynia	Holeraceæ	Japan	T
109	Enneandria	Monogynia	Holeraceæ	Malabar	T

Linnæan Name.	*English Name.*	*Flowering.*
110 Laurus Cinnamomum	Cinnamon Laurel	—
111 Laurus Nobilis	Common Laurel	April
112 Laurus Sassafras	Sassafras Laurel	May
113 Lavandula Spica	Common Lavender	June
114 Leontodon Taraxacum	Common Dandelion	April
115 Lichen Islandicus	Iceland Moss	—
116 Lichen Rocella	Litmus Lichen	—
117 Linum Catharticum	Purging Flax	June
118 Linum Usitatissimum	Common Flax	July
119 Lythrum Salicaria	Loosetrife	July
120 Malva Sylvestris	Common Mallow	May
121 Marrubium Vulgare	Common Horehound	July
122 Melaleuca Leucodend.	Cajuput Oil Tree	July
123 Melissa Officinalis	Common Balm	July
124 Mentha Piperita	Pepper-Mint	Aug.
125 Mentha Pulegium	Penny-royal-Mint	Aug.
126 Mentha Viridis	Spear-Mint	Aug.
127 Menyanthes Trifoliata	Common Buckbean	May
128 Momordica Elaterium	Squirting Cucumber	June
129 Morus Nigra	Common Mulberry	June
130 Myristica Moschata	Nutmeg Tree	—
131 Myroxylon Peruiferum	Sweet-smelling Balsam	Aug.
132 Myrtus Pimenta	Allspice Tree	June
133 Nicotiana Tabacum	Virginian Tobacco	July
134 Olea Europea	European Olive	July
135 Origanum Marjorana	Sweet Marjoram	July
136 Origanum Vulgare	Common Marjoram	July
137 Oxalis Acetosella	Common Wood-sorrel	April
138 Papaver Rhœas	Red or Corn Poppy	June
139 Papaver Somniferum	White Poppy	June

	Class.	*Order.*	*Natural Order.*	*Soil.*	*Kd.*
110	Enneandria	Monogynia	Holeraceæ	Ceylon	T
111	Enneandria	Monogynia	Holeraceæ	Italy	T
112	Enneandria	Monogynia	Holeraceæ	N. Amer	T
113	Didynamia	Gymnospermia	Verticillatæ	Europe	P
114	Syngenesia	Æqualis	Compositæ	Britain	P
115	Cryptogamia	Algæ	Algæ	Britain	P
116	Cryptogamia	Algæ	Algæ	Britain	P
117	Pentandria	Pentagynia	Gruinales	Britain	A
118	Pentandria	Pentagynia	Gruinales	Britain	A
119	Dodecandria	Monogynia	Calycanthem.	Britain	P
120	Monadelphia	Polyandria	Columniferæ	Britain	P
121	Didynamia	Gymnospermia	Verticillatæ	Britain	P
122	Polyadelphia	Icosandria	Hesperideæ	Amboyna	T
123	Didynamia	Gymnospermia	Verticillatæ	Euprope	P
124	Didynamia	Gymnospermia	Verticillatæ	Britain	P
125	Didynamia	Gymnospermia	Verticillatæ	Britain	P
126	Didynamia	Gymnospermia	Verticillatæ	Britain	P
127	Pentandria	Monogynia	Preciæ	Britain	P
128	Monœcia	Monadelphia	Cucurbitaceæ	S.Europ.	P
129	Monœcia	Tetrandria	Scabrideæ	Persia	S
130	Diœcia	Monadelphia	Holeraceæ	Moluccas	T
131	Decandria	Monogynia	Lomentaceæ	S. Amer.	T
132	Icosandria	Monogynia	Hesperideæ	S. Amer.	T
133	Pentandria	Monogynia	Luridæ	America	A
134	Diandria	Monogynia	Sepiariæ	S.Europ.	T
135	Didynamia	Gymnospermia	Verticillatæ	Portugal	A
136	Didynamia	Gymnospermia	Verticillatæ	Britain	P
137	Decandria	Pentagynia	Gruinales	Britain	P
138	Polyandria	Monogynia	Rhœdeœ	Britain	A
139	Polyandria	Monogynia	Rhœdeœ	Asia	A

Linnæan Name.	*English Name.*	*Flowering.*
140 Pastinaca Opoponax	Rough Parsnip	July
141 Pimpinella Anisum	Common Anise	July
142 Pinus Abies	Norway Spruce Fir	April
143 Pinus Balsamea	Canada Fir	April
144 Pinus Larix	Common Larch	March
145 Pinus Sylvestris	Scotch Fir	May
146 Piper Cubeba	Cubeb Pepper	—
147 Piper Longum	Long Pepper	—
148 Piper Nigrum	Black Pepper	—
149 Pistacia Lentiscus	Mastic Pistacia	May
150 Pistacia Terebinthus	Turpentine Pistacia	June
151 Polygala Senega	Seneka-root Plant	June
152 Polygonum Bistorta	Great Bistort	May
153 Prunus Domestica	Common Plum Tree	April
154 Pterocarpus Erinacea	Kino Tree	—
155 Pterocarpus Santalinus	Red Saunders Tree	—
156 Punica Granatum	Quince Tree	May
157 Pyrus Cydonia	Pomegranate Tree	July
158 Quassia Excelsa	Bitter Quassia Tree	Oct.
159 Quassia Simarouba	Simarouba Tree	—
160 Quercus Infectoria	Gall or Dyer's Oak	May
161 Quercus Pedunculata	Pedunculated Oak	April
162 Quercus Robur	Oak Bark Tree	April
163 Rhamnus Catharticus	Purging Buckthorn	May
164 Rheum Palmatum	Palmated Rhubarb	May
165 Rheum Undulatum	Wave-leaved Rhubarb	May
166 Rhododendron Chrysan.	Rhododendron	June
167 Rhus Toxicodendron	Sumach or Poison Oak	June
168 Ricinus Communis	Castor Oil Plant	Aug.
169 Rosa Canina	Dog Rose or Wild Briar	June
170 Rosa Centifolia	Provins Rose	June
171 Rosa Gallica	French or Red Rose	June

	Class.	Order.	Natural Order.	Soil.	Kd.
140	Pentandria	Digynia	Umbellatæ	S. Europ.	P
141	Pentandria	Digynia	Umbellatæ	Egypt	A
142	Moncœcia	Monadelphia	Coniferæ	Europe	T
143	Moncœcia	Monadelphia	Coniferæ	N. Amer.	T
144	Moncœcia	Monadelphia	Coniferæ	Alps	T
145	Moncœcia	Monadelphia	Coniferæ	Britain	T
146	Diandria	Trigynia	Piperitæ	Java	P
147	Diandria	Trigynia	Piperitæ	E. Indies	P
148	Diandria	Trigynia	Piperitæ	E. Indies	P
149	Dicœcia	Pentandria	Amentaceæ	Levant	T
150	Dicœcia	Pentandria	Amentaceæ	Barbary	T
151	Diadelphia	Octandria	Lomentaceæ	N. Amer.	P
152	Octandria	Trigynia	Holeraceæ	Britain	P
153	Icosandria	Monogynia	Pomaceæ	Asia	T
154	Diadelphia	Decandria	Papilionaceæ	Africa	T
155	Diadelphia	Decandria	Papilionaceæ	India	T
156	Icosandria	Pentagynia	Pomaceæ	S. Europ.	T
157	Icosandria	Pentagynia	Pomaceæ	Crete	T
158	Decandria	Monogynia	Gruinales	Surinam	T
159	Decandria	Monogynia	Gruinales	Jamaica	T
160	Moncœcia	Polyandria	Amentaceæ	Asia	T
161	Moncœcia	Polyandria	Amentaceæ	Britain	T
162	Moncœcia	Polyandria	Amentaceæ	Britain	T
163	Pentandria	Monogynia	Dumosæ	Britain	S
164	Enneandria	Trigynia	Holeraceæ	China	P
165	Enneandria	Trigynia	Holeraceæ	Siberia	P
166	Decandria	Monogynia	Bicornes	Siberia	S
167	Pentandria	Trigynia	Dumosæ	N. Amer.	S
168	Moncœcia	Monadelphia	Tricoccæ	Indies	A
169	Icosandria	Polygynia	Senticosæ	Britain	S
170	Icosandria	Polygynia	Senticosæ	S. Europ.	S
171	Icosandria	Polygynia	Senticosæ	S. Europ.	S

	Linnæan Name.	*English Name.*	*Flowering.*
172	Rosmarinus Officinalis	Common Rosemary	April
173	Rubia Tinctorum	Dyer's Madder	June
174	Rumex Acetosa	Common Sorrel	July
175	Rumex Aquaticus	Great Water-dock	July
176	Ruta Graveolens	Common Rue	June
177	Saccharum Officinarum	Sugar Plant	—
178	Salix Alba	White Willow	April
179	Salix Caprea	Grt. round-leav. Willow	April
180	Salix Fragilis	Crack Willow	April
181	Salvia Officinalis	Garden Sage	June
182	Sambucus Nigra	Common Elder	June
183	Scilla Maritima	Squill or Sea Onion	April
184	Scrophularia Nodosa	Knobby-rooted Figwort	July
185	Sinapis Alba	White Mustard	June
186	Sinapis Nigra	Black Mustard	June
187	Sium Nodiflorum	Creeping Water Parsnip	July
188	Smilax Sarsaparilla	Sarsaparilla Plant	July
189	Solanum Dulcamara	Bitter Sweet	June
190	Solidago Virga Aurea	Common Golden Rod	July
191	Spartium Scoparium	Common Broom	May
192	Spilegia Marilandica	Perennial Worm-grass	July
193	Stalagmatis Cambogiod.	Gamboge Tree	—
194	Strychnos Nux Vomica	Poison-nut Plant	—
195	Styrax Benzoin	Benzoin Tree	—
196	Styrax Officinale	Common Storax	July
197	Swietenia Febrifuga	Febrifuge Swietenia	—
198	Tamarindus Indica	Tamarind Tree	June
199	Tanacetum Vulgare	Common Tansey	July
200	Toluifera Balsamum	Balsam of Tolu	—
201	Teucrium Marum	Common Marum	—
202	Teucrium Chamædrys	Wall Germander	June
203	Tormentilla Erecta	Common Tormentil	June

	Class.	*Order.*	*Natural Order.*	*Soil.*	*Kd.*
172	Diandria	Monogynia	Verticillatæ	S. Europ.	S
173	Tetrandria	Monogynia	Stellatæ	S. Europ.	P
174	Hexandria	Digynia	Holeraceæ	Britain	P
175	Hexandria	Digynia	Holeraceæ	Britain	P
176	Decandria	Monogynia	Multisiliquæ	S. Europ.	P
177	Triandria	Digynia	Gramina	Indies	P
178	Dicœcia	Diandria	Amentaceæ	Britain	T
179	Dicœcia	Diandria	Amentaceæ	Britain	T
180	Dicœcia	Diandria	Amentaceæ	Britain	T
181	Diandria	Monogynia	Verticillatæ	S. Europ.	P
182	Pentandria	Trigynia	Dumosæ	Britain	T
183	Hexandria	Monogynia	Coronariæ	S. Europ	P
184	Didynamia	Angiospermia	Personatæ	Britain	P
185	Tetradynamia	Siliquosa	Siliquosæ	Britain	A
186	Tetradynamia	Siliquosa	Siliquosæ	Britain	A
187	Pentandria	Digynia	Umbellatæ	Britain	P
188	Dicœcia	Hexandria	Sarmentaceæ	Virginia	P
189	Pentandria	Monogynia	Luridæ	Britain	S
190	Syngenesia	Superflua	Compositæ	Britain	P
191	Diadelphia	Decandria	Papilionaceæ	Britain	S
192	Pentandria	Monogynia	Stellatæ	Britain	P
193	Polygamia	Monœcia	Tricoccæ	Ceylon	T
194	Pentandria	Monogynia	Luridæ	E. Indies	A
195	Decandria	Monogynia	Bicornes	Sumatra	T
196	Decandria	Monogynia	Bicornes	Levant	T
197	Decandria	Monogynia	Trihilatæ	E. Indies	T
198	Monadelphia	Triandria	Lomentaceæ	Indies	T
199	Syngenesia	Superflua	Compositæ	Britain	P
200	Didynamia	Gymnospermia	Verticillatæ	Britain	P
201	Didynamia	Gymnospermia	Verticillatæ	Spain	P
202	Decandria	Monogynia	Dumosæ	America	T
203	Icosandria	Polygynia	Senticosæ	Britain	P

Linnæan Name.	*English Name.*	*Flowering.*
204 Triticum Æstivum	Summer Wheat	July
205 Triticum Hybernum	Winter Wheat	Aug.
206 Tussilago Farfara	Common Coltsfoot	March
207 Ulmus Campestris	Common Elm	April
208 Valeriana Officinalis	Common Valerian	June
209 Veratrum Album	White Hellebore	July
200 Veronica Beccabunga	Broad-leaved Brooklim.	June
211 Viola Odorata	Sweet Violet	April
212 Vitis Vinifera	Common Grape Vine	June
213 Wintera Aromatica	Winter's Bark Tree	—
214 Zingiber Officinale	Officinal Ginger	Sept.

	Class.	*Order.*	*Natural Order.*	*Soil.*	*Kd.*
204	Triandria	Monogynia	Gramina	.....	A
205	Triandria	Monogynia	Gramina	.....	A
206	Syngenesia	Superflua	Compositæ	Britain	P
207	Pentandria	Digynia	Scabrideæ	Britain	T
208	Triandria	Monogynia	Aggregatæ	Britain	P
209	Polygamia	Monœcia	Coronariæ	Europe	P
210	Diandria	Monogynia	Personatæ	Britain	P
211	Pentandria	Monogynia	Personatæ	Britain	P
212	Pentandria	Monogynia	Hederaceæ	Armenia	T
213	Polyandria	Tetragynia	.....	.....	T
214	Monandria	Monogynia	Scitamineæ	E. Indies	P

A TABLE

OF

ENGLISH AND SYSTEMATIC NAMES.

Acacia, Medicinal	Acacia Catechu.
Aconite or Monkshood	Aconitum Napellus.
Agaric of the Oak	Boletus Ignarius.
Agrimony, Common	Agrimonia Eupatoria.
Alkanet, Common	Anchusa Tinctoria.
Allspice Tree	Myrtus Pimenta.
Almond Tree	Amygdalus Communis.
Aloe, Hepatic	Aloe Vulgaris.
Aloe, Socotorine	Aloe Spicata.
Ammoniacum Plant	Heracleum Gummiferum.
Angelica, Garden	Angelica Archangelica.
Anise, Common	Pimpinella Anisum.
Arnica, Mountain	Arnica Montana.
Asarabacca	Asarum Europeum.

Assafœtida Plant	Ferula Assafœtida.
Avens, Common	Geum Urbanum.
Balm, Common	Melissa Officinalis.
Balm of Gilead	Amyris Gileadensis.
Balsam, Sweet smelling	Myroxylon Peruiferum.
Barley, Common	Hordeum Distichon.
Bear's, Whortleberry	Arbutus Uva Ursi.
Benzoin Tree	Styrax Benzoin.
Bistort, Great	Polygonum Bistorta.
Bitter-sweet	Solanum Dulcamara.
Bladder Fucus	Fucus Vesiculosus.
Blessed Thistle	Centaurea Benedicta.
Brooklime, Broad-leaved	Veronica Beccabunga.
Broom, Common	Spartium Scoparium.
Buckbean, Common	Menyanthes Trifoliata.
Buckthorn, Purging	Rhamnus Catharticus.
Burdock, Common	Arctium Lappa.
Cabbage Tree	Geoffræa Inermis.
Cajeput Oil Tree	Melaleuca Leucodendron.
Calumba Tree	Cocculus Palmatus.
Camphor Tree	Laurus Camphora.
Canella, White	Canella Alba.
Caraway, Common	Carum Carui.
Carrot, Garden	Daucus Carota.
Carrot, Wild	Daucus Sylvestris.
Cardamom Plant	Elettaria Cardamomum.
Cascarilla Tree	Croton Cascarilla.
Cassia, Purging	Cassia Fistula.
Cassia Tree	Laurus Cassia.
Cayenne Pepper	Capsicum Annuum
Centaury, Common	Chironia Centaurium.
Chamomile, Common	Anthemis Nobilis
Chinchona, Yellow-barked	Cinchona Cordifolia.

Chinchona, Red-barked	Cinchona Oblongifolia.
Chinchona, Pale-barked	Cinchona Lancifolia.
Cinnamon Tree	Laurus Cinnamomum.
Clove Pink	Dianthus Caryophyllus.
Clove Tree	Eugenia Caryophyllata.
Colt's-foot, Common	Tussilago Farfara.
Contrayerva Plant	Dorstenia Contrayerva.
Copaiba Balsam Tree	Copaifera Officinalis.
Coriander, Common	Coriandrum Sativum.
Cowitch or Cowage	Dolichos Pruriens.
Croton, Purging	Croton Tiglium.
Cuckoo-flower	Cardamine Pratensis.
Cubeb Plant	Piper Cubeba.
Cucumber, Bitter	Cucumis Colocynthis.
Cucumber, Squirting	Momordica Elaterium.
Cumin, Common	Cuminum Cyminum.
Cusparia or Augustura	Cusparia Febrifuga.
Dandelion, Common	Leontodon Taraxacum.
Deadly Nightshade	Atropa Belladonna.
Dill, Common	Anethum Graveolens.
Egyptian Thorn	Acacia Vera.
Elder, Common	Sambucus Nigra.
Elecampane	Inula Helenium.
Elemi Tree	Amyris Elemifera.
Elm, Common	Ulmus Campestris.
Fern, Male	Aspidium Filix Mas.
Fig Tree	Ficus Carica.
Fig-wort Knobby	Scrophularia Nodosa.
Fir, Canada	Pinus Balsamea.
Fir, Norway Spruce	Pinus Abies.
Fir, Scotch	Pinus Sylvestris.
Flax, Common	Linum Usitatissimum.

Flax, Purging	Linum Catharticum.
Flowering Ash	Fraxinus Ornus.
Foxglove, Purple	Digitalis Purpurea.
Galbanum	Bubon Galbanum.
Gamboge Tree	Stalagmatis Cambogioides.
Garlic, Common	Allium Sativum.
Gentian, Yellow	Gentiana Lutea.
Ginger, Officinal	Zingiber Officinale.
Golden-rod, Common	Solidago Virga Aurea.
Grape-vine, Common	Vitis Vinifera.
Guaiacum Officinal	Guaiacum Officinale.
Hedge-hyssop	Gratiola Officinalis.
Hellebore, Black	Helleborus Niger.
Hellebore, Stinking	Helleborus Fœtidus.
Hellebore, White	Veratrum Album.
Hemlock, Spotted	Conium Maculatum.
Henbane, Black	Hyoscyamus Niger.
Hop, Common	Humulus Lupulus.
Horehound, Common	Marrubium Vulgare.
Horse-chesnut, Common	Æsculus Hippocastanum.
Horse-radish, Common	Cochlearia Armoracia.
Hyssop, Common	Hyssopus Officinalis.
Iceland Moss	Lichen Islandicus.
Ipecacuanha	Cephaelis Ipecacuhana.
Iris, Florentine	Iris Florentina.
Jalap Plant	Convolvulus Jalapa.
Juniper, Common	Juniperus Communis.
Juniper, Lycian	Juniperus Lycia.
Kino Tree	Pterocarpus Erinacea.

Larch, Common	Pinus Larix.
Laurel or Sweet Bay	Laurus Nobilis.
Lavender, Common	Lavandula Spica.
Leek, Common	Allium Porrum.
Lemon Tree	Citrus Medica.
Lettuce, Garden	Lactusa Sativa.
Lettuce, Strong-scented	Lactusa Virosa.
Liquorice, Common	Glycyrrhiza Glabra.
Litmus Lichen	Lichen Rocella.
Logwood Tree	Hæmatoxylon Campechianum.
Loosestrife	Lythrum Salicaria.
Mackaw Tree	Cocos Butyracea.
Madder, Dyer's	Rubia Tinctorum.
Mallow, Common	Malva Sylvestris.
Marjoram, Common	Origanum Vulgare.
Marjoram, Sweet	Origanum Marjorana.
Marsh-mallow, Common	Althæa Officinalis.
Marum, Common	Teucrium Marum.
Mastiche Tree	Pistacia Lentiscus.
Meadow-saffron, Common	Colchicum Autumnale.
Mezereon	Daphne Mezereum.
Mulberry, Common	Morus Nigra.
Mustard, Black	Sinapis Nigra.
Mustard, White	Sinapis Alba.
Nutmeg Tree	Myristica Moschata.
Nux Nomica or Poison Nut	Strychnos Nux Vomica.
Oak, British	Quercus Robur.
Oak, Dyer's	Quercus Infectoria.
Oak, Pedunculated	Quercus Pedunculata.
Oats, Common	Avena Sativa.
Olive, European	Olea Europea.
Onion, Common	Allium Cepa.

Opoponax Plant	Pastinaca Opoponax.
Orange, Seville	Citrus Aurantium.
Parsley, Common	Apium Petroselinum.
Pellitory of Spain	Anthemis Pyrethrum.
Pennyroyal	Mentha Pulegium.
Pepper, Black	Piper Nigrum.
Pepper, Long	Piper Longum.
Pepper-Mint	Mentha Piperita.
Plum Tree, Common	Prunus Domestica.
Pomegranate Tree	Punica Granatum.
Poppy, Red or Corn	Papaver Rhœas.
Poppy, White	Papaver Somniferum.
Quassia Tree	Quassia Excelsa.
Quince Tree	Pyrus Cydonia.
Red Saunders Tree	Peterocarpus Santalinus.
Rose, Dog or Wild	Rosa Canina.
Rose, French or Red	Rosa Gallica.
Rose, Provins	Rosa Centifolia.
Rosemary, Common	Rosmarinus Officinalis.
Rhatany, Medical	Krameria Triandra.
Rhododendron	Rhododendron Chrysanthemum
Rhubarb, Palmated	Rheum Palmatum.
Rhubarb, Wave-leaved	Rheum Undulatum.
Rue, Common	Ruta Graveolens.
Saffron, Common	Crocus Sativus.
Sage, Garden	Salvia Officinalis.
Sarsaparilla Plant	Smilax Sarsaparilla.
Sassafras Tree	Laurus Sassafras.
Savine	Juniperus Sabina
Scammony Plant	Convolvulus Scammonia.
Sea Holly or Eryngo	Eryngium Maritimum.

Sea Wormwood	Artemisia Maritima.
Seneka-root Plant	Polygala Senega.
Senna, Egyptian	Cassia Senna.
Simarouba Tree	Quassia Simarouba.
Squill or Sea Onion	Scilla Maritima.
Spear Mint	Mentha Viridis.
Spurge, Officinal	Euphorbia Officinarum.
Sorrel, Common	Rumex Acetosa.
Southernwood, Common	Artemisia Abrotanum.
Southernwood, Tartarian	Artemisia Santonica.
Stavesacre	Delphinium Staphisagria.
Storax, Common	Styrax Officinale.
Sugar Plant	Saccharum Officinarum.
Sumach or Poison Oak	Rhus Toxicodendron.
Sweet Fennel, Common	Anethum Fœniculum.
Sweet Flag, Common	Acorus Calamus.
Swietenia, Febrifuge	Swietenia Febrifuga.
Tamarind Tree	Tamarindus Indica.
Tansey, Common	Tanacetum Vulgare.
Thorn Apple	Datura Stramonium.
Tobacco, Virginian	Nicotiana Tabacum.
Tormentil, Common	Tormentilla Erecta.
Tragacanth	Astragalus Verus.
Turpentine Pistacia	Pistacia Terebinthus.
Valerian, Common	Valeriana Officinale.
Violet, Sweet	Viola Odorata.
Virginian Snake-root	Aristolchia Serpentaria.
Wake-robin, Common	Arum Maculatum.
Wall Germander	Teucrium Chamædrys.
Water-dock, Great	Rumex Aquaticus.
Water-parsnip, Creeping	Sium Nodiflorum.
Wheat, Summer	Triticum Æstivum.

Wheat, Winter	Triticum Hybernum.
Willow, White	Salix Alba.
Willow, Round-leaved	Salix Caprea.
Willow, Crack	Salix Fragilis.
Winter's-bark Tree	Wintera Aromatica.
Wood-sorrel, Common	Oxalis Acetosella.
Worm-grass, Perennial	Spigelia Marilandica.
Wormwood, Common	Artemisia Absinthium.
Zedoary, Common	Curcuma Zedoaria.

GENERAL INDEX.

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LINNÆAN ARTIFICIAL SYSTEM.

LINNÆAN NATURAL SYSTEM.

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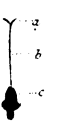

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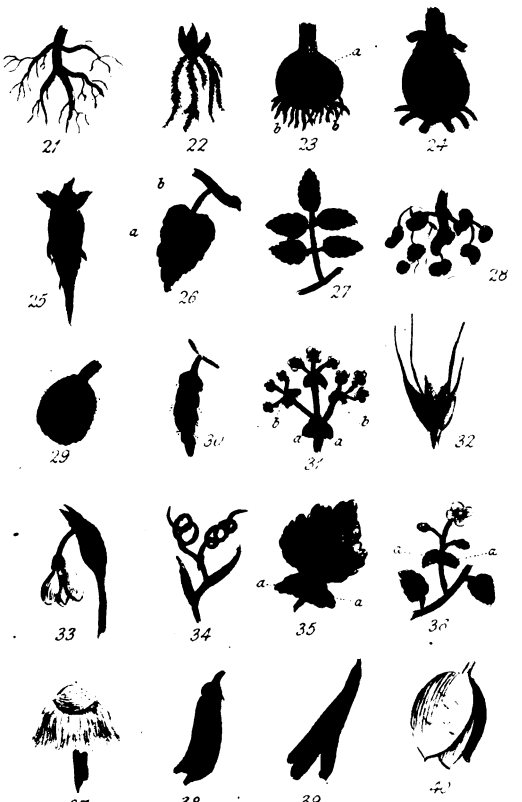

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