

PICTORIAL
WEBSTER'S



A Visual Dictionary of Curiosities

BY JOHNNY CARRERA



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A Visual Dictionary of Curiosities

WITH ADDITIONAL DISSERTATION BY

JOHN M. CARRERA

AUTHOR, COMPOSER, PRINTER



NOAH WEBSTER
1758–1843



CHRONICLE BOOKS
SAN FRANCISCO

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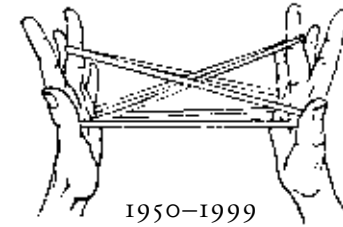
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for SAM WALKER

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through careful observation and study.* – Assizeriz

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KEY TO THE NUMBERS AND LETTERS ACCOMPANYING THE ENGRAVINGS

The numbers accompanying the images were stamped on the side of each engraving by G. & C. Merriam Co. as an indexing system. The notation following the index number, added for this project, tells more about each engraving:

- W** – denotes images printed directly from wood engraving blocks.
- M** – denotes images printed from metal electrotypes.
- D** – denotes images digitally captured and added for this trade edition.

The following letters and numbers are used to indicate the first edition of the dictionary in which the image appears:

- I** – denotes engravings copied from an image found in the Imperial Dictionary of 1851.
- 9** – denotes the 1859 American Dictionary of the English Language (the first illustrated dictionary printed in the United States).
- 4** – denotes the much larger 1864 edition.
- N** – denotes the 1890 International Dictionary.
- L** – denotes an edition printed after 1900.
- E** – denotes the 1909 Second International Dictionary.

(Note that there were many updated versions of each edition; some of these engravings may have been recut duplicates or updated images.)

PREFACE

In the summer of 1995, while poking around my grandmother's stone farmhouse, I found a tattered 1898 Webster's International Dictionary under my grandfather's favorite reading chair. The disintegrating sheepskin covers were detached and a number of browned and brittle sections were falling out from the back of the book. The loose pages revealed an eighty-page section devoted entirely to the illustrations of the dictionary: a stunning array of odd and wonderful animals and machines printed by categories. The fantastic variety of subjects was matched only by the detail and variety of engraving techniques.

Shortly before discovering that fateful Webster's, I had completed a collaborative artist's book for an exhibit at the Dibner Library at the Smithsonian Institution that grappled with questions of the origin of ideas. I realized a book filled with disparate images, such as those from the Webster's, could be an artistic experiment to test my hypothesis on the origin of creativity: that new ideas arise from the recombinations of old ideas. It would also be an important and beautiful visual reference. That fall I contacted the Merriam-Webster Company and discovered that the engravings still existed. They had been given to Yale University in 1977. This book is the culmination of a long odyssey to put the engravings back into print and make a book designed to educate, inspire, and entertain.

Nearly all the engravings in this work are culled from the nineteenth-century engravings used in Webster's dictionaries printed by the G. & C. Merriam Co. (George and Charles Merriam bought the rights to the official "Webster's"

after Noah Webster's death in 1847.) More than 10,000 engravings and their exact duplicates, called electrotypes, now reside in the Press Room of the Arts of the Book Collection at Yale University. The engravings, or "cuts," are stored in a long row of dark-green cabinets housing more than 150 cases (drawers) filled to the brim. My first, thrilling look at one of these drawers revealed hundreds upon hundreds of dust-covered cuts strewn in an unintelligible jumble. At that moment I grasped the vastness of the collection, but I still had no idea I was about to devote more than a decade of my life to this endeavor.

It took a year to simply identify and alphabetize the engravings I selected for *Pictorial Webster's*. After showing my commitment by reorganizing the collection, the Sterling Library made a unique loan agreement allowing me to borrow the engravings and print an artists' book with the original cuts at my Quercus Press. It was a tedious, laborious process preparing and printing the century-old cuts by hand, but seeing the old blocks brought back to life as crisp images on good paper kept the project going month by slow month as the years ticked by. The fine press edition of *Pictorial Webster's* was printed using a letterpress, the same relief process that was used to print the original dictionaries.

In letterpress printing, ink is rolled onto the letterforms made of metal type and the engravings, which are then printed directly onto the paper. The printed image is the reverse image of the type and engravings, and the engraved blocks are the same size as the images they print. Because they wanted to fit as many words and images in the dictionaries of the late nineteenth century as possible, the images had to be small. Most of the blocks in the fine press edition are smaller than an inch square. Some of the engravings are so small in the original that one needs magnification to appreciate the delicate lines and skill that went into their making. Many of the engravings created for the 1890 International Dictionary (such as Aurochs on page 23) were executed with too much detail for the printing process and paper used, so appear as black silhouettes. But by using a sophisticated reproduction letterpress of the twentieth century, printing on smooth paper from the original blocks, I was able to bring out the best detail of every line of these intricately carved images.

When I began working on *Pictorial Webster's* in 1996, it was always with the plan to entice a publisher to bring the work to a wider audience. For this reason I made master proofs of each print run on ultrasmooth paper to make as faithful a reproduction of the engravings as possible. I am thrilled that this book is being published by Chronicle Books, as Chronicle has been a great innovator in using the full possibilities of trade production methods to create unique and original books. As the book is mostly visual and conceptual, it can be mass produced without losing the essential quality of the work.

Since I started this project, reproduction technology has changed completely. One of the improvements in this edition is that the images have been enlarged to a modest 115 percent so readers can better appreciate the engravings themselves. By using the magic of the computer, this edition further restores the original lines intended by the engravers, while keeping the quality of tone that letterpress printing imparts. Digital technology has also allowed this edition to continue to explore and play with the content of the book. In this way this book is not merely a copy of the fine press edition, but has become its own unique version that may even surpass the other in some aspects.

That said, the book remains (on the surface) a book of fascinating little images originally made as wood engravings. Wood engravings are created through a reduction process on the end-grain of boxwood using sharp little tools called burins. Boxwood is soft, but has incredibly dense grain, which allows for great detail. The images in the book span two distinctive eras in American wood engraving. Black line engravings, also called American style, are made by making or transferring a line drawing directly onto the face of the boxwood. Then, using variously shaped burins, the engraver carves away all the wood except for the lines of the drawing. One can imagine the great skill and confidence it took to engrave a block down to the merest thin lines to print as a line drawing. Well-known engraver John Andrew was hired to make all of the engravings for the 1859 Webster's (the first illustrated dictionary in America), and his shop continued engraving black line engravings for the 1864 Webster's. What is forgotten today is that each individual line in black

line engravings was imbued with meaning. As Hiram Merrill, an apprentice in John Andrew's shop, explained:

[W]ood engraving was held within limits established by tradition: a certain kind of line for skies, another for flesh, hair, foliage, drapery, water, rocks, foreground, background, etc., all with meaning and beauty in themselves. Once a line was cut it must not be modified in any way, and such a thing as cutting across the lines was regarded with horror.

John Andrew was also known for something called the "Andrew Wiggle," which one can look for in the engravings. (A description is in the Notes and Commentary section at the end of this book.) Andrew's death in 1870 marked the turning point away from the expressive black line engravings.

By the time the International Dictionary was printed in 1890, the New School of engraving was ubiquitous in America. Notable for its use of photographic methods to transfer images, the new school engravings tended to have a more scientific and clinical feel to them. The old horror of cutting across the line is gone, as the emphasis of the new school was not line but tone.

William Fowler Hopson was a young man when he was hired to update the Webster's. Hopson, trained in new school technique, engraved some 2,500 illustrations for the 1890 International Dictionary. It was on this project that he honed his skills as an engraver. The Hippopotami on the bottom of page 176 are a good example of the change in style. The Hippopotamus on the left is engraved in the old American style. Notice the black lines within the belly area and legs, the cross-hatching in front of the hind legs, and the quality of the lines used to depict the background foliage. This Hippopotamus contrasts sharply with the new school Hippopotami on the right. Notice the dark part of the animal is not made up of lines, but stippled marks that work up a dark tone. Also, the lines of the belly area are crosscut, creating a stronger sense of reflected light.

After the Second International Dictionary was published in 1909, the engraving process was abandoned. Images that were new to the 1934 Webster's New International Dictionary, Second Edition and the 1961 Webster's Third New International

Dictionary were printed from mounted copper plates made from line drawings. These later cuts make an interesting contrast to the wood engravings, not only for their content but also for their style and execution. Other images that make an interesting contrast to the majority are a few random engravings that happened to be mixed into the cases at Yale that made their way into the *Pictorial Webster's*. The Cow on page 84 and Wolf on page 403 are two examples of historic engravings not from dictionaries.

The engravings I made to include in the book are a combination of black line and new school. I created these engravings to enhance (or subvert) the “text,” or because I felt an image was missing and should be included in the collection. The careful reader might notice an improvement in my engraving technique toward the end of the book. After using maple for my first few engravings, I switched to boxwood collected at my grandmother's farm, the same farm where I found the Webster's Dictionary that precipitated this whole quest. The better material allowed me to engrave more finely than I had ever imagined I could.

The attentive reader may also discover some errors in spelling and identification. As the editor of the fourth edition of the Imperial Dictionary wrote in 1882, “[Errors] might reasonably be expected to occur in an undertaking of such extent, and so difficult and so laborious in execution.” Even the makers of Webster's made mistakes: The fishes “Roach” and “Rudd” swapped places between the 1864 edition and the 1879 reprint of the same book. And although we may have been taught otherwise, many of the Latin names for flora and fauna used in the old dictionaries and copied here have been changed.

The *Pictorial Webster's* is more than a collection of dictionary engravings. It is a treasure chest of the nineteenth-century universe. What editors chose to depict indicates what nineteenth-century American society valued of their world. It was a compelling time to take a snapshot of what was. America was becoming the chief innovator and producer of goods; at the same time colonialism or curiosity was spurring great discoveries in the exploration of the natural world.

Our world has changed immeasurably in the hundred or so years since that time. Subspecialization has made it practically impossible to showcase or understand

the gizmos of different trades, while many of the species we discovered are gone or soon will be because of the same great advances the nineteenth century brought about. The engravings in the “&” section are filled with images from the early twentieth century, the world many of us now remember with nostalgia from our youth. Because it was produced in Massachusetts, the Webster's all have a distinctly Yankee perspective. This explains, for example, why there are so many images of mollusks, fishes, and ships, as whaling, shipping, and fishing were critical to the economy of New England in the middle part of the nineteenth century. One might note that the Standard on page 340 is that of Massachusetts and the Cipher on page 71 is that of Noah Webster. As *Pictorial Webster's* becomes a time capsule for what the natural world was, it is ironic that the most plentiful fishes found in the book are also one of the first major groups of animals predicted to disappear from our planet in the next fifty years.

One of the important compulsions of the nineteenth century was to make sense of the world through categorization. This extended beyond flora and fauna to human beings. So what a member of today's society interprets as racist depictions of categories of people was then believed to be useful scientific information. The problem with portraying a race with an image of one individual is that it instantaneously marginalizes millions of other members of that same race. However, this problem of correctly portraying what a thing looks like extends to everything. Once one depicts something more complex than images of geometry, the decisions of the artist become crucial to our understanding of what is being illustrated. This problem of properly portraying a term can be stated in philosophical terms as an American attempt to illustrate pure forms. Because many of the images in the Webster's dictionaries were copied widely by other dictionaries, Webster's images of things such as an anchor, an anvil, or Atlas have become iconic to our culture. Lacking consensus on what the Platonic ideal of any individual thing would look like, artists were entrusted with the responsibility of rendering acceptable representatives of an entry.

By endeavoring to visually define specific terms and concepts, dictionary illustration is a distillation of what it means to illustrate things. The images in the

1859 dictionary are all put into a visual context, which could make it difficult at times to know exactly what was being illustrated. But because there was intentionality given even to lines during the John Andrew era of Webster's, the subject is evident and the engravings seem to be imbued with personality. The shadows cast by the Compasses on page 78 make them appear to march across a plain, and the Weeping Willow on page 403 truly seems to weep. Although Hopson's engravings appear less Victorian than those of Andrew, they also capture personality. An example is the image of a Bloodhound. A note an editor wrote to another while assembling the 1961 third edition pleads "Please put him in—if not, perhaps, a modern show specimen; he's still the very essence of bloodhound." And leave it in they did (see page 46; the note referred to the front-facing bloodhound). Recently, dictionary makers have continued this debate by arguing whether an illustration or a photograph best serves to elucidate an entry.

Alphabetization is another key element to this book. It is, simply, my artistic choice. It is worth noting that dictionaries were not always alphabetized. For hundreds of years conventional wisdom was that words should be organized by category, such as winemaking, horse terminology, law, philosophy, etc. Visual information continued to be organized by categories following this same tradition. Perhaps the most famous illustrated reference book, Diderot's *Encyclopédie* of eighteenth-century France, may have insured adherence to this principal. Diderot's massive work portrays vignettes of a papermaker's studio, a bookbindery, a tannery, and so on to show the various tools, but also illustrate how each process works.

In nineteenth-century America, this type of pictorial book was also popular. (Dover makes a reproduction of one of these books, *Heck's Pictorial Archive of Nature and Science*.) Full pages may depict dozens of birds or a dramatic landscape illustrating many geologic processes. Because the images were made with page-size engraved metal plates, they could never be rearranged like the Webster's wood engravings.

The "Illustrated Webster's" sections of the old dictionaries were also grouped according to categories. You can see this thematic organization of images used today from children's books by Richard Scarry to illustrated books for adults like

David Macaulay's *The Way Things Work*. I chose to use the alphabet for organizing the engravings because I wanted to let the engravings escape being pigeonholed into categories. Alphabetization allows them to assume an organization that is more random and dynamic.

So, where can meaning be found in this book? How do we find meaning anywhere in our lives? We cannot make sense of raw facts and data unless they are put into some kind of context. We continually triangulate our perception of reality through shifting sets of metaphor. The book that follows might be seen as an outdated wooden card catalog of what were once factual images, a visual reference book of the nineteenth century, or a graphic novel that takes place in that era. The astute reader will notice many of the characters reappear as themselves, or slightly changed as the book progresses. They masquerade, as if transformed, but, like heroes throughout literature, they retain the same flaws and cunning in either state. The book might be a nation, each letter being a state, and each engraving having a home according to an alphabetical address. Or, perhaps, it is an even plane where each image stands its own ground amid the disparate images on a page.

My hope is that readers will become acquainted with individual images and pages and discover a personal resonance with the images before reading the introduction that follows. For those who are interested in more discussion of topics mentioned in this preface, there is a great deal in the Pancreas at the back of this book about the history of illustrated dictionaries, engraving, the making of this book, etc. *Pictorial Webster's* does not need to be "read from cover to cover" as much as opened and meditated upon for short—or long—intervals, as time and interest dictate. I hope you find much pleasure and inspiration exploring and studying the images, the pages, and the universe they create.

J. M. C.
WALTHAM, MASSACHUSETTS, 2008

ARTIST'S INTRODUCTION

WARNING: *Reading this Introduction may change your understanding of the book to follow. It is the apple of my artistic intent.*

On the surface, *Pictorial Webster's* is a miniature unabridged image dictionary—a visual reference book with a historical bent. It is also a study of visual design and a resource for those interested in wood engravings and their printing. The conceptual underpinning is that this book can act as a springboard for individual creativity. It was printed with a belief that the human compulsion to find meaning would lead readers to create stories that explain whole pages and perhaps even inspire some to derive unifying threads that might, in a Joycean fashion, enable a narration of the entire book.

The surface function of the book as a visual reference needs little explanation. The book contains many great examples of how to solve problems of illustration. It may also be used as

a resource by the artist or printer to study the technique and artistry of the draftsmen and engravers of the nineteenth century.

By virtue of the magnitude of engravings, their varying density and size, the book also becomes a study in design. The book's alphabetical arrangement was adhered to loosely enough so that each page (and page spread) would be pleasing to the eye. (Note that Form on page 145 does come before Function on page 149.) Each page was carefully laid out with the intent of creating the most pleasing arrangement of imagery. Some pages (79, 175) have bilateral symmetry; some make a grid (139, 382–383); some revolve around a central image (119, 367); while others make use of strong diagonals (103); or consciously use the shapes of engravings to move the

reader's eye around the page (112–113). To make key images pop out more on a page, an extra underlay of .002 inches was added during printing. Important images are often repeated, as are certain similar shapes that recur in various objects to further the design of a page.

The design of the book also fuels the deeper content by forcing the images on the small pages to engage in dialogue. Like humans, when a group of inanimate objects are put in a small space, they must engage each other, and conflict often arises. So many animals seem to argue and even threaten to fight (e.g., Crawfish on page 86 and Crocodiles on 87) that one might believe Cyme and Cyclamen are headed for conflict on page 92. When there is more space on a page, or an animal is the sole creature, it seems to relax, such as the Aardvark on page 1. One might notice the graceful turn on page 221 where the Lyre Bird compares itself to its namesake. Noticing the way this process of juxtaposition animates the objects will also alert the reader to ironies such as the Pool Table placed next to the shark (Porbeagle) on page 281. (Yes, there is trouble in River City.)

Arranging the beetles as an insect collection also brings attention to the scientific nature of the images and the idea of “collection.” The beetle pages (37–39) were inspired by the awesome diversity of this species on the planet and the terrible task of nomenclature they have posed to Adam and his descendants. The *Pictorial Webster's* is in effect a Wonder Cabinet of the Nineteenth Century. It is filled with both the Factual and the Fantastic. As mentioned in the Preface, the importance of fishing in nineteenth-century New England allowed for the incredible wealth of fish engravings. The additional pages included allow the fish to interact with each other and even to slip in and out of the gutter of the page. The reader may wonder, “What do these fish do behind the folds of the book?”

Of course, all of the interactions in this book must be inferred by the reader. Because except for a few images like Leap frog (207) and titles for images such as Retort (301) that can be read as verbs, or movement via The Mechanical Powers (230), the images illustrate only nouns and static concepts. This book is only half a story, then, as nouns alone

won't get one very far. The book requires the active involvement of the reader to supply the verbs and make the story flow. How is one to get immersed and "read" the book, then? Perhaps it would be good to first define the "text" of this book.

The "text" in *Pictorial Webster's* is made up of the illustrations—each illustration can be a word, a sentence, a paragraph, or in some cases, an entire chapter. The titles are supplied to give names and subtext to the images. The numbers create a numerical tag, a tether to an order we no longer understand. In order to read a page of this book, the reader needs to quiet the mind and spend time meditating on the engravings on a page and wait to see what connections come up.

Books succeed when they use descriptions of events and emotions that resonate with something we recognize within ourselves and then push situations a step farther to stretch our own perceptions of the world. When the reader opens a page of this book to an image for which he or she has a particular association, that engraving may start as the focus of the page. Then, by associating

unknown images into the context of the known one, that page will begin to develop a story for the reader. But a true "reading" of this book will probably defy a literary description. As in the first days of school where the bewilderment of a new pattern only began to make sense after a few days, this book will become meaningful according to the amount of time spent immersed in the pages.

There are numerous page spreads that illustrate some of the artistic influences at work in the book. Headings such as "Is It Science?" and "Is It Art?" make commentary on its dualistic nature. But the most important page spread for understanding the artistic theory behind this book is Pipe and Pith (274–275). It is the Rosetta Stone of the *Pictorial Webster's*.

A clue that this is a key to the book should be seen by the Pith heading, but also by the first image, the Obelisk. Like hieroglyphics, the images on these pages can be deciphered to tell the readers how they might understand the book. Marcel Duchamp's artwork may go the farthest in describing what is happening in *Pictorial Webster's*, just as

one day he placed the front fork of a bicycle with the wheel on it in the hole of a stool. *Et voilà!* In 1913, *Bicycle Wheel* was born. Duchamp put two very different things together to create a thing of beauty. In his other "Readymades" Duchamp challenged the world to see how any object taken out of its everyday context might be seen as something beautiful.

Duchamp redefined functional objects as formal by renaming them to further remove the associations traditionally attached to them. The engravings of the reference book variety were generally not regarded as art, despite the fact Andrew is called a "skillful artist" in the introduction to the 1859 Webster's. But placed in the context of this book, today's reader will readily appreciate the care and pride of these drawings and see their execution as artwork in its own right. The successful artist well knows the power a name can convey to a piece of art. (If you overlay Duchamp's Fountain on the Form page 145 you get an entirely different appreciation for Flytrap and Foraminifera. Ouch!)

Connected to this issue of name, Pipe 14157-M (page 274) bears a striking

resemblance to the pipe in Magritte's painting containing the text "Ceci n'est pas une pipe." Magritte used text in his artwork to make the viewer rethink the connection between words and images, and it is hoped that the chosen text accompanying images in *Pictorial Webster's* will do the same for you.

Joan Miró painted *Harlequin's Carnival* (see "Presque Miro"), which depicts a room teeming with odd things including a surreal Salvador Dalí smoking a pipe. Like many of the surrealists, Miró collected fabulous objects: fetishes, oddities, and specimens of nature from around the world. The surrealists felt these collections would help them tap into the universal flow of subconscious ideas.

Tickling the subconscious through juxtapositions of fabulous objects is not only one of the main artistic underpinnings of this book, but it is my own cultural experiment to enhance the creativity of society. My explanation of how these collections of objects and how *Pictorial Webster's* can be used as a springboard to creativity is found in an appendix, but the nutshell explanation is as follows: Humans instinctively

look for connections between proximal objects. When you study a page, your brain immediately starts finding commonalities to find some way to link the various objects. The thread that connects them is often something new that you have never before considered. The further removed two things are, the wilder the thread that connects them, but often the more powerful the idea. Because, truly, everything in the universe *is* connected somehow: It's just a question of figuring out the connection.

Another image on this signature spread is that of Portrait of the Artist. The title refers to *Portrait of the Artist as a Young Man* by James Joyce, master of literary stream of consciousness. *Pictorial Webster's* can easily be seen as a late nineteenth-century visual stream of consciousness.

The last three images I will mention on this spread are those of Content, Faith, and Folly. Those are the three main components of the book, and I will see what comes of their company for the remainder of this introduction, in which the Artist sits down at his Easel and creates.

CONTENT

Content is the cat who looks at the area just below your face from the page. Who is she looking for? I know this cat, as she looks a little like Oedipus, one of the cats we owned long ago. Could Adam have had dominion over Content? There wouldn't have been house cats in the Garden, as humans domesticated (though never tamed) cats long after that time.

I use the scientific name *Felis catus* so that people around the world can all use the same name for the one called Content. But, as Adam's names for things have been lost or changed, Latin names have changed over time, too. So what should we call the Dodo Bird? "Inept" (*ineptus*) or "Ralf" (*Raphus*)? What does *Raphus* mean? But *Catus contentus* isn't interested in chasing after that bird, no matter how dumb or arrogant it may have been. Content alone is all that matters to Content.

FAITH

Faith stands at attention looking to see what will come next. She is all anticipation, but never doubts the book will find some meaningful order. She is a dog, and it doesn't really matter to her; she trusts her master to know what it all means. But when I come to feed her she looks at me in a way that makes me doubt myself. Rather than alphabetically, should I have organized the book using QWERTY as a guide? Quintain, the well of the Magyars, would be the first entry. Or would ETAOIN SHRDLU (the arrangement of keys on a linotype) better organize the text? Etheostomoid would come first, followed by Ear. . . .

I need to meditate. It is not complicated. They are pretty pictures. I will just pick out one page and enjoy it. I can do this while sitting in a waiting room, in a bathroom, or on the beach. Anyone can pick this book up for a moment and ponder one of man's—or God's—strange creations. Yes, I'll look at some little picture of a flower and appreciate the fact that it is there. For all of our great advances, there is still a place for a daisy.

But my brain won't quit jumping around. In spite of the fact that an image of a hat on top of the Eiffel Tower can also be found on the flap of a Pop Tarts box, it all looks too much like the jumble of the world outside. I wish Anders, the book critic in Tobias Wolff's story, hadn't gotten that bullet to the brain in the bank lobby. Maybe in heaven he is in touch with the artist Adamson-Eric; if he could give a "critical reading" of the text, then we could apply that unifying principal to some other arena of thought. There must be an algorithm to help, but most of us lack the ability to visualize those trajectories in this day and age because the computers know how to get us right to the marks we seek.

Faith laps up the water in her metal bowl. I should do the same, but it's as if my mind is a colander and the juice just keeps dripping out. I just keep thinking of Yeats and his single use, in all of his poetry, of the word "sieve." One goddamned pipedream, but not of the iceman, it was the lowman. Could they be the same man from long ago, covered in hair, lost in the snow?

Who willed this order of images? Did I? Is it not like the text of our planet, and if you decode the order, will you not have tapped into the language of our Creation? Am I the egocentric artist (I am God or I am confused), or merely a pawn controlled by Faith?

“NO!” I bark. Even if the numbers under Sphinx (The) on page 336 someday have a coincidental overlap with other numbers in my life, I will never know or care. I can search the numbers on every parking ticket, every ISBN, every cereal box UPC, and one day I might find the matching number. I can play those numbers every day in the Massachusetts Lottery. And if I match the number on my Cheerios box and win the Mass Millions on the same day, I will not blink. Nothing can shake my faith. Though Faith does need a bath.

FOLLY

The Pleurotoma on the next page came out of its shell in the safe dark of long ago. We are talking about the time of Babylon. But when the day came to print the book, where did he go?

Folly, the fish, is looking elsewhere. Down through the fold she swims to see the Pleurotoma whom she has come to love. Though the Pleurotoma can't talk in a language that Folly can understand, Folly still believes that Pleurotoma can understand her. Folly talks to him like a young toddler who says hi to animals and statues alike, as if they understand and are happy to be addressed. *Pleur* means “cry” in French. It is confusing and embarrassing to cry as an adult. I must confess I don't know why they cried in Babylon. The charade is over. Is that why they are *Pleuro-tom-as*? A tome is a book, come on, man. No one is going to go that route. It's a delusion to think they'd put on a diving suit and stand on the bottom of the ocean and say, “Yup, toma could, indeed be tome. Yo! Home!” But, what about bananas: Were there bananas in Babylon? Maybe in the oasis? Yes, *Musa paradisiaca*, the bananas of paradise! We *can* go back.

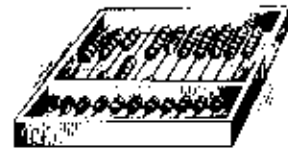
Stop, I should stop—because this is your book to discover. I was showing you what the pages were doing in *my* brain, but who was it that said “dreams are

ever only of interest to the dreamer”? Be your own T. S. Eliot; it is for you to allow yourself the time to saunter through the book and see what new poetry may populate *your* dreams.

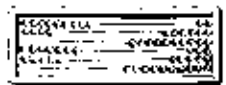
Aa



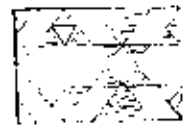
Armadark 5R-W4



Abacus 4925R-ML



Abacus 18R-W4



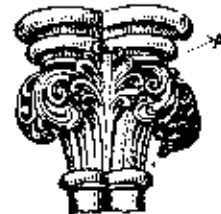
Abaculus
29R-W4



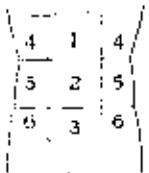
Abacus;
Corinthian Doric
30R-W4



Abalone (Shell of)
39R-MN



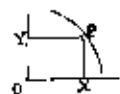
Abacus; English
Gothic 123R-MN



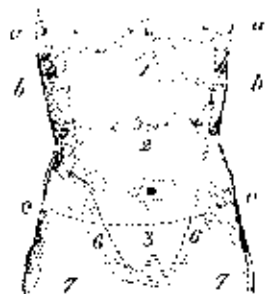
Abdominal Regions
13159-ML



Abdominal the Part
24R-W4



Abscissa
34R-W4



Abdominal Region 4918-W4
Above the line *bb* (1) epigastric region; below *cc*, hypogastric region; (2) umbilical region; (4,4) hypochondriac region; (6,6) iliac region; (3) region of the pubis; (7,7) pelvis.



Abdominal 13R-MN



Acacia
(New Holland)
14R-W4



Acaleph 35R-MN



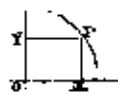
Acaleph 3R-W4



Accipiter 30-W



Abitis 1R-W4



Abscissa
34R-W4



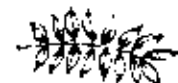
Acanthus 6R-W4



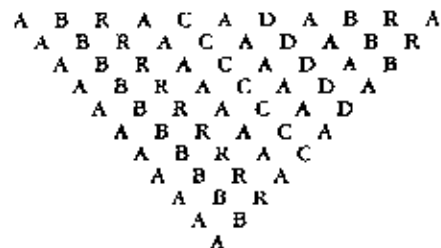
Acanthopterygian
Perch 16R-W4



Accidental
Point 11R-W4



Abruptly Pinnate
Leaf 23R-W4



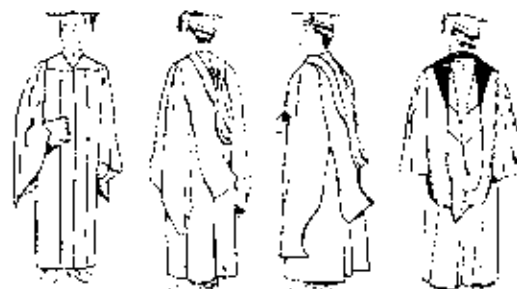
Abacadabra 1369-M



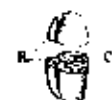
Acerose Leaves
10R-W4



Accosted
574R-WI



Academic Costume 13160-ML
1 Undergraduate in Cap and Gown; 2, 3,
4 Bachelor, Master, Doctor in Cap.



Accumbent
Cotyledons
27R-W4



Acetabulum
28R-W4



Accordian 26RS-W4



Acipenser Sceler 17-W4



Achenium 9R-W4



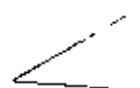
Acinaciform Leaf
31-W4



Aciculate 4917R-ML



Acontia
45R-MN



Acute Angle
25R-WI



Acute Leaves
8R-WI



Addax 855R-MN



Acorn 13RS-W4



Acorn Barnacle
38R-MN



Adjutant
4238R-MN



Adiantum 4927R-ML



Adelphia
21R-WI



Acroteria 19R-W4



Actinia (Sea
Anemone) 44R-MN



Aculeate
42R-W4



Acontia 12R-W4



Actinia bermudensis
with Acrothagus
4516R-ML



Acuminate Leaf
5555R-MN



Acuminate Leaves 2R-WI



Aeolipyle 145R-MN



Aeolian Harp 126R-W4



Adze 125RS-W4



Affrontee
127R-WI



African Race
4408R-W4



Agama 128R-W4



Agave 129R-W4



Alcyonaria
91R-MN



Alewife 330-M



Agnus Dei 4951R-ML



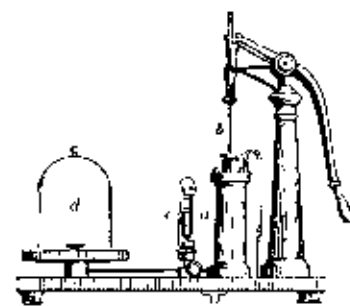
Aggregate
Fruit 49R-MN



Agouty 130R-W4



Alcyonaria
4072-MN



Air Pump 1300R-MN



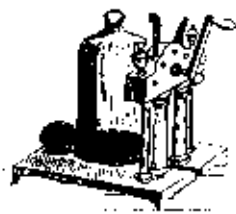
Air Pump 8094S-W



Akkad 4953-ML



Aim 899R-MN



Air Pump 131R-W4



Alb 132R-W4



Allerion
136R-W1



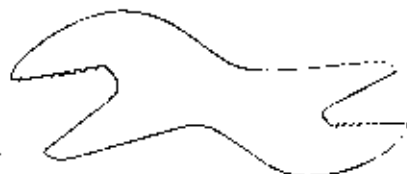
Albatross 50R-ML



Allecret Armor
135R-W4



Alligator *A. Mississippiensis*
64R-MN



Alligator Wrench 4642-ML

	1	2	3	4	5	6	7	1	2	3	4	5	6	7
A	AAA	AAA	AAA	AAA	AAA	AAA	AAA	N	N	N	N	N	N	N
B	BBB	BBB	BBB	BBB	BBB	BBB	BBB	O	O	O	O	O	O	O
C	CCC	CCC	CCC	CCC	CCC	CCC	CCC	P	P	P	P	P	P	P
D	DDD	DDD	DDD	DDD	DDD	DDD	DDD	Q	Q	Q	Q	Q	Q	Q
E	EEE	EEE	EEE	EEE	EEE	EEE	EEE	R	R	R	R	R	R	R
F	FFF	FFF	FFF	FFF	FFF	FFF	FFF	S	S	S	S	S	S	S
G	GGG	GGG	GGG	GGG	GGG	GGG	GGG	T	T	T	T	T	T	T
H	HHH	HHH	HHH	HHH	HHH	HHH	HHH	U	U	U	U	U	U	U
I	III	III	III	III	III	III	III	V	V	V	V	V	V	V
J	JJJ	JJJ	JJJ	JJJ	JJJ	JJJ	JJJ	W	W	W	W	W	W	W
K	KKK	KKK	KKK	KKK	KKK	KKK	KKK	X	X	X	X	X	X	X
L	LLL	LLL	LLL	LLL	LLL	LLL	LLL	Y	Y	Y	Y	Y	Y	Y
M	MMM	MMM	MMM	MMM	MMM	MMM	MMM	Z	Z	Z	Z	Z	Z	Z

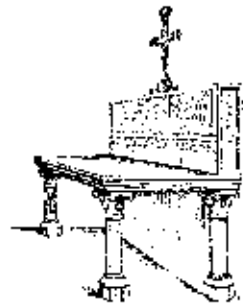
Alphabets 13400-ML



Alpaca 137R-W4*



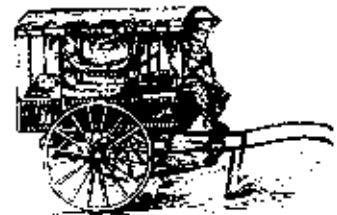
Alternate Leaves
138R-W4



Altar 151R-MN



Ambulacrum 90R-MN



Ambulance 140R-W4



Amoeba
54R-MN



Ament 57R-MN



American Race
1403R-W4



American Bison 153-M



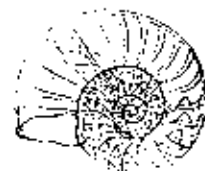
American Bison 856RA-MN



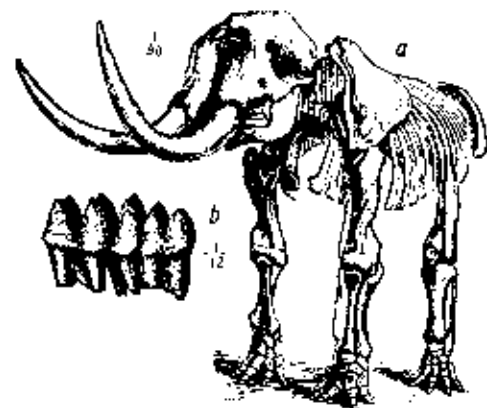
Amphitheater 47-D4



Ammonite
215R-MN



Ammonite 141R-W9



American Mastodon 2173R-MN b Molar



Amphibia "Marsh Frog" 1420R-W



Amphiprostyle 149R-W4



Amphibia "Marsh Frog" 142R-W4



Amphibaena 86R-MN



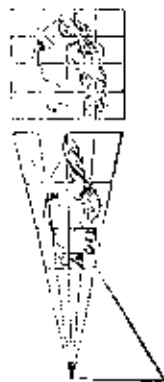
Amphioxus 79R-MN



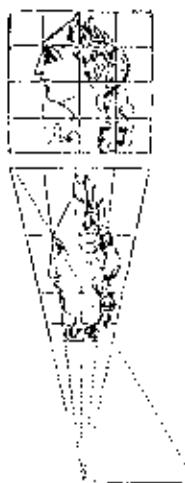
Amplexicaul Leaf 173R-W1



Anabes; Tree-Climbing Fish 175R-W4



Anamorphosis 5552-W



Anamorphosis 176R-W4



Ampulla 174R-W4



Amphora 172R-W4



Anchor (flukes) 1396-ML



Anchor 5523R-W



Anchor 475-ML
1 Ring; 2 Stock;
3 Shank; 4 Bill
5 Fluke; 6 Arm
7 Throat; 8 Crown



Sheet-anchor 1217-D4



Anchors of a Holothurian 56-MN



Anchor 177R-W4 as Stock:
b Shank; cc Flukes; dd Arms.



Anchovy 817R-WN



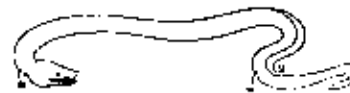
Anchovy 8175R-MN



Acanthus 7302-ML



Anubis 187R-W4



Amphiuma 106R-MN



Andiron 179-W4



Androsphinx 179R-W4



Angwantibo
4255R-MN



Antae 4993R-M-I



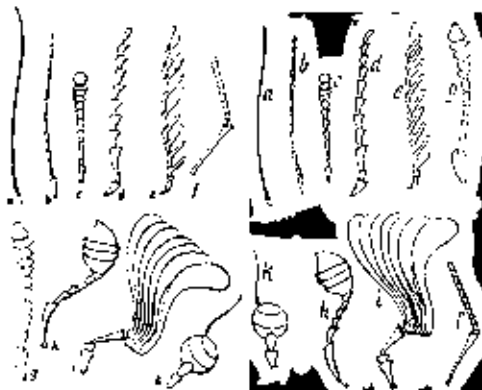
Angwantibo
96R-M



Antelope 214R-MN



Angler (Lopholichthys caudata) 492 DI



Antennae 47R-MN Antennae 2921-WN
Antennae of Insects: a Setiform; b Filiform; c Moniliform; d Dentate; e Pectinate; f Crooked (Geniculate); g Clavate; h Knobbed (Capitate); i Lamellate; k Arisate.



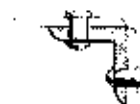
Antennae (Firefly)
8150-W1



Anemone 153R-MN



Antlers of Fossil Irish Elk
186R-W1



Angle Iron
181R-W4



Angle Valve
4644-ML



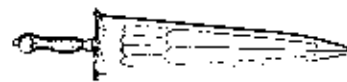
Annelida
4398R-MN



Anomura 72R-MN



Anguimoid Moth 89R-MN



Arms, of time of Edward IV
182R-W4



Anomia 13476-MN



Ant Bear 13542-ML



Ant Bear 8122-W



Anvil 188R-W4



Aphaniptera 59R-WN



Ants 4263R-MN



Ant 76-M



Ant 116R-M



Anthrenus 82R-MN



Ants 2855-W



Ant 53R-M



Ant 4263-M



Ant 4654R-ML



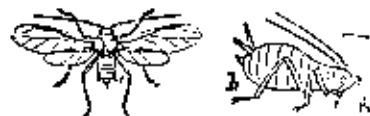
Ant Lion 88R-MN



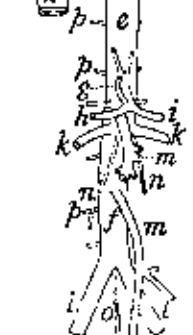
Ant Lion Den 78R-MN



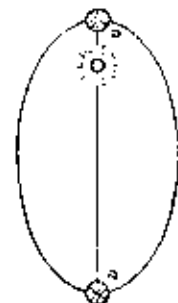
(Head of Dog Flea)



Aphis 81R-MN*



Aorta 13925-MN



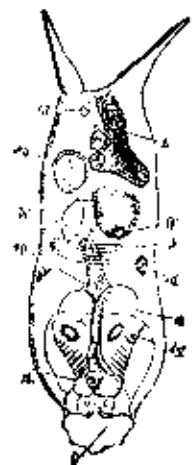
Apsides 66R-M+



Aphroaete Butterfly 157R-MN



Audad 76R-MN



Appendicularia
86R-MN



Aprieumona 98R-MN



Archintades Screw
196R-W4



Aplysias 4278R-MN



Archipterygium 115R-MN



Arch showing Skew
Backs 3189R-W4



Arctic Fox 816-WN



Archaeopteryx 4347R-MN



Arcograph
164R-MN



Apteryx 158R-MN



Apple Borer
51R-MN



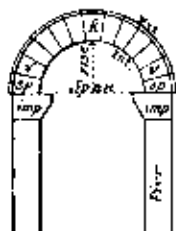
Arctic Race 4404R-W4



Aqueduct 190R-W4



Apothem 156R-MN



Arch 13005ML



Argali 586-WN



Argent
197R-WI



Argali 2215R-W



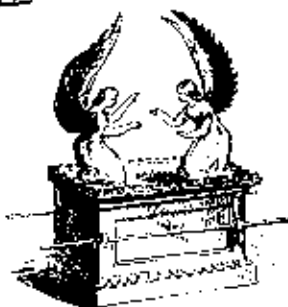
Ark Shell 48R-MN



Arbalet 192R-W4



Argonaut 46R-MN



Ark of the Covenant 74-D4



Armillary Sphere 199R-M



Aristotle's Lantern 119R-MN



Armadillo 198R-W4



Armor 1961R-M4



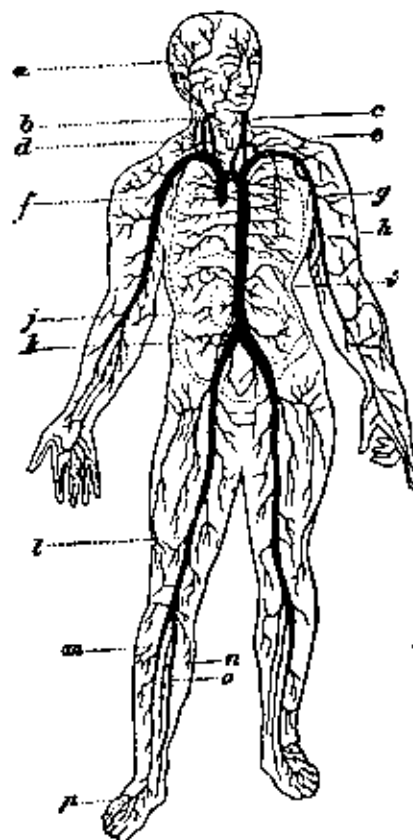
Arrow 200R-W4



Army Worm 61R-MN



Arms Port 894R-MN



Arterial System 1370R-M4
 a Temporal artery; b Carotid artery; c Vertebral artery; d e; Subclavian artery; f Aorta or great artery; g Axillary; h Brachial; i Celiac; j Renal; k Iliac; l Femoral; m Posterior tibial; n Anterior tibial; o Peroneal; p Pedal artery.



Artemia 87R-MN



Asci 63R-MN



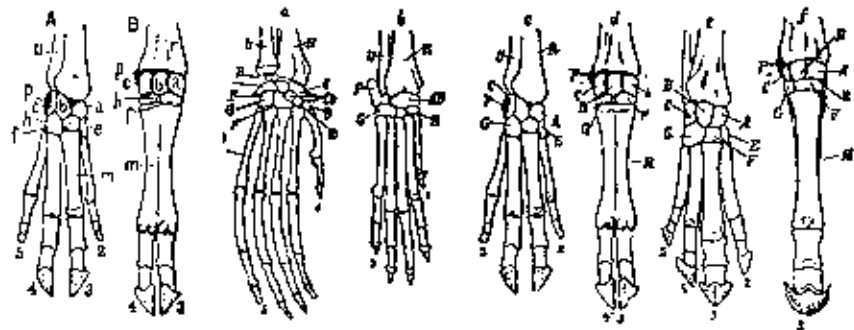
Ascidium 58R-MN



Ascidian 402R-MN

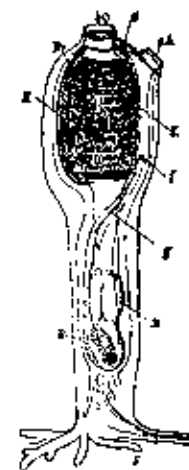


Armillary Sphere 69-D1



Artiodactyla 435R-MN

All manner of Dactylae 85R-M
 A (c) Fore foot (Manus) of Pig
 B (d) Manus of Ox
 e Manus of Tapir; f Manus of Horse
 (Only A (c) & B (d) are Artiodactyla)



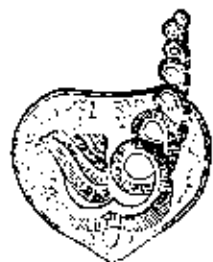
Ascidioides 52R-MN



Ascidioides 2961-W



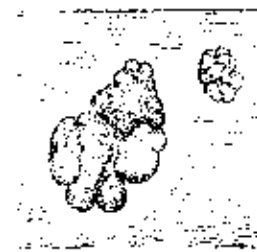
Ascidioides 118R-MN



Arthropomata 84-MN



Arapaima (*A. gigas*) 159R-MN



Ascococcus 413R-MN



Asp 201R-W4



Arthrogastra 67R-MN



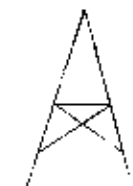
Asterioides (*Echinaster sentus*) 13478-M
 A. Ambulacral feet or suckers; O. Mouth



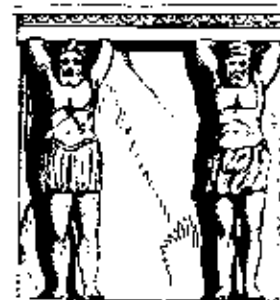
Aspergill 302R-W4



Asp 65R-MN



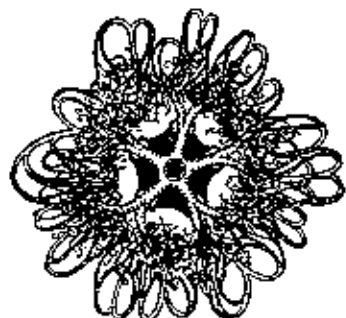
Asses' Bridge 436R-WN



Atlantes 203R-W4



Atlas 204R-M4



Atrophyton 71R-MN



Aurora Borealis 5846R-ML



Aurochs 404R-MN



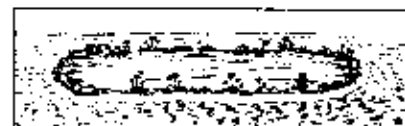
Auricularia 108-MN



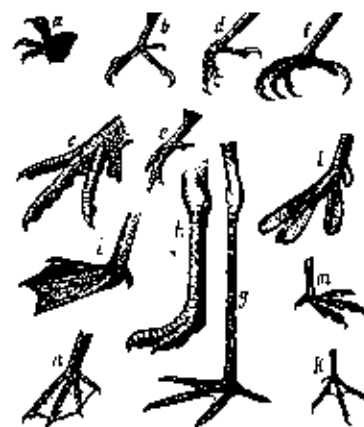
At Gaze
1509R-WI



Australian Race
4405R-W4



Atoll 8025-MN



Aves (Feet of Aves) 4348R-MN
a Adhamant; b Scansorial; c Ambulato-
rial; d Inessorial; e Anisodactylous;
f Raptorial; g Grallarorial; h Rasorial
i Webbed; k Semipalmate; l Fissipalmate;
m Lobate; n Totipalmate.



Aves 2939-WN
a Adhamant; b Scansorial; c Gallina-
ceous; d Fissipedal; e Gressorial; f
Raptorial; g Wading; h Cursorial; i
Palmate; m Lobate; n Oured.



Atrypa 437R-MN



Auriculate
206R-W4



Auks 169R-MN



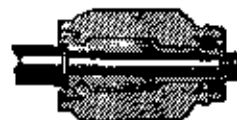
Axis 171R-MN



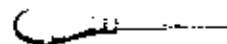
Axolotl 94R-MN



Axillary 218R-MN



Axle Box (Wagon Hub) 217R-MN



Awl 13587-ML



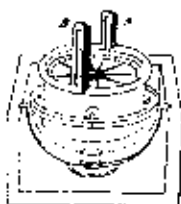
Shoemaker's Awl 209R-W4



Aye-aye 92R-MN



Avocet 401R-MN



Azimuth Compass 211R-W4



Azure 212R-W1

Bb



Ba 13450-ML



Babirusa 297R-M



Baboon 852R-MN

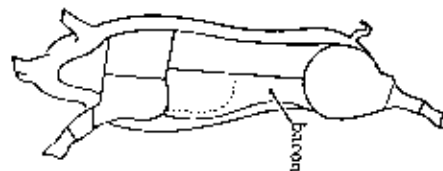


Badger 812R-WN



Badger 298R-MN

BACON



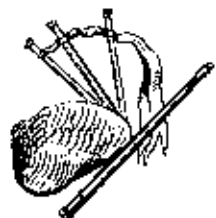
Bacon 54-55-ML



Bacilli 1340-MN



Back Swimmer 335R-MN



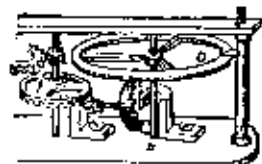
Bagpipe 220R-W4



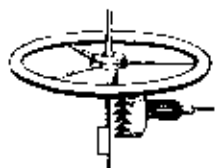
Bagworm 307R-MN



Balance 221R-W4



Balance Wheel 416R-M



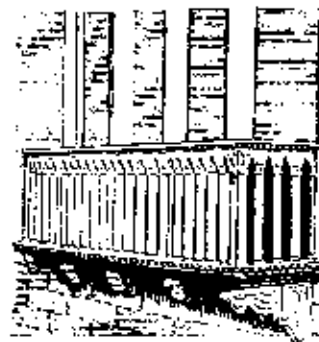
Balance of a Watch 223R-W4



Baleen 299R-MN



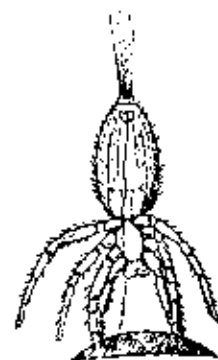
Bald Eagle 737R-MN



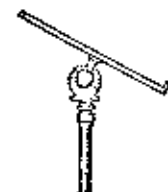
Balcony 769R-MN



Ball-flowers 768R-M



Ballooning Spider (*Lycosa* sp.) 360R-M



Ball and Socket Joint 413R-MN



Baldachin 781R-MN



Balloon 226R-W1



Balloon 5103R-ML



Baltimore Oriole 433R-MN

BALTIMORE

B

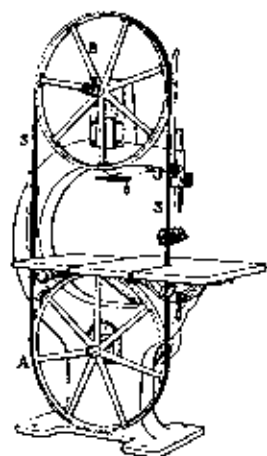
B

BAND

B



Bank Swallow
301R-MN



Band Saw 5077R-ML



Balustrade 227R-W4



Bandicoot 795R-WN



Banjo 162R-ML



Bamboo 736R-MN



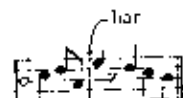
Banana 228R-W4



Bamboo 411R-M



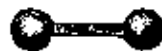
Barbary Ape 811R-M



Bar 54-66-ML



Barbary Ape 811R-MN



Bar Shot
236R-W4



Bandicoot 795R-MN



Barbet 428R-MN



Banyan Tree 229R-W4

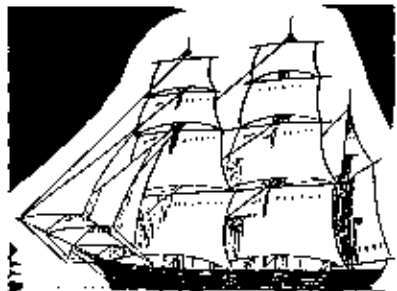


Barberoussa 810R-MN

BARBET

B

B



Bark 2945-W



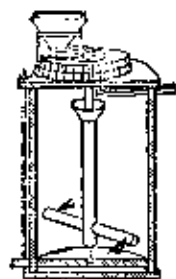
Barque 167-D4



Bark 8049R-M



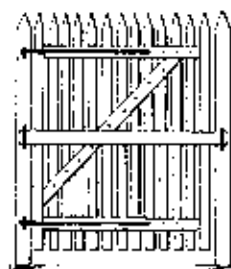
Barkentine 2946-W

Barker's Mill
438R-MNBottle Tree 4470R-M
(*Sterculia rupestris*)Bark Lice
(*Mytilaspis pomorum*)
303R-MN

Barn Owl 631R-WN

Barley
233R-W4Barn Owl (*Strix
flammea*) 631R-MNBasket Worm
Case 307R-MNBaron's Coronet
234R-W4

Bartizan 237R-W4



Barrier Gate 235R-W4

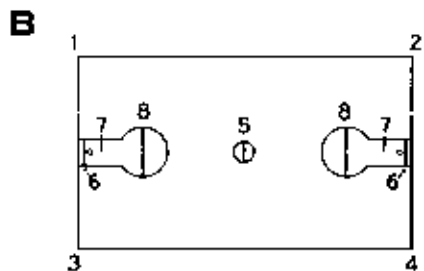


Barred Owl 122-MN

Barnyard Grass
4297R-MN

B

BASKETBALL



Basketball Court 13457-ML



Basilisk 306R-MN



Bassoon 439R-MN



Basque 238R-W4



Basommatophora 309R-MN



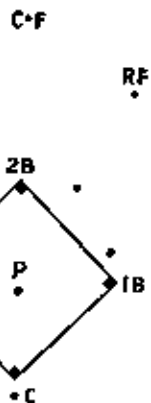
Bass-Viol 834R-MN



Bass? 3065R-M



Bastion 341R-WN
a Curtain angle; b Shoulder
c Salient angle; aa Gorge; ab
Flank; ad Curtain; bc Face



Baseball Diamond 942-ML

BATTLEMENT



Bat of New England 310R-MN
Silent bats in drowsy clusters cling.
Goldsmith



Batfish 440R-MN



Bat Tick 312R-MN



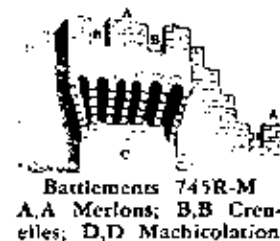
Batrachoid 4334R-MN



Battlement 245R-W1



Battle-axes 5115R M



Battlements 745R-M
A,A Merlons; B,B Crenelles; D,D Machicolations



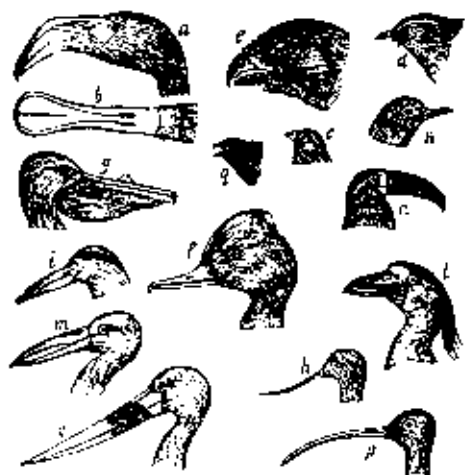
Battering-ram 5519R-W



Battering-ram 234R-W4

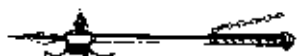
30

30



Beaks 4368R-MN

a Flamingo; b Spoonbill; c Finch; d Thrush
e Falcon; f Merganser; g Pelican; h Avocet;
i Skimmer; k Pigeon;



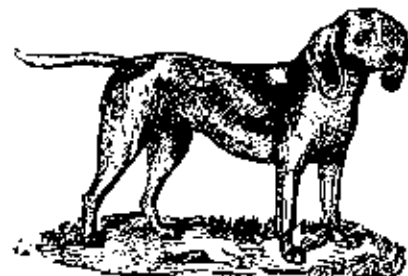
Battle-axe 244R-W4



Battery of Leyden Jars
829R-W4



Beaver 813R-MN



Beagle 315R-MN



Bear of Palestine
4355R-MN



Bear 8120-W



Beaver
250R-W9

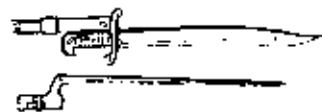


Battledoors
419R-MN



Beaks 2958-WN

l Boatbill; m Oprebill; n Toucan
o Saddle-billed Stork; p Curlew; q Swift.



Bayonet 246R-W4



Bdellomorpha (Clam
Parasite) 422R-MN



Beaker
248R-W4



Bee Beetle
319R-MN



Beach Flea of New England
315R-MN



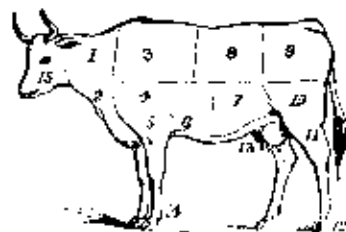
Bee Fly 320R-MN



Bee-eater 624R-MN

Bee Fly
320R-MN

Bee-eater 251R-W4



Beef Creature 8083-W4

1 Neck; 2 Shaking-piece; 3 Chine; 4 Ribs;
5 Clod; 6 Brisket; 7 Flank;
8 Loin; 9 Rump; 10 Round;
11 Leg; 12 Foot; 13 Udder;
14 Shin; 15 Cheek.



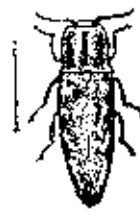
Beeves 5264R-ML

A beard of beeves. - Milton

Bearded Darnel
4306R-MNBeech Twig
414R-MN

Beetle 1372R-MI

*To the dreadful summit of the
cliff that beetles o'er his base into
the sea. Shak.*

Antenniform
13929-MBark
303R-MNClick
2084-MNGround
6365R-MLadybug
662R-MPotato
2805-MNBombardier
412R-MBeetle-head
4325R-MLady
4857-MLadybird
4847R-MHelp!
4883-MPear Decay
1697-WArmiger
4677R-MRose
1917-WSoldier
2092-WN

B

B



Diamond
766-W



Cantharis
934R-W4



Diamond
1283R-MN



Beetle
763R-W



Be-God
685R-M



Stag
15095-MN



Vine
2706-WN



Scarab
3113-WN



Srag
2134-WN



Bite!
3511R-MN



Lucanidae
763-WN



Necrophagan
2358R-WN



Elater
6080R-M



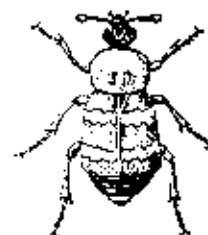
Oscar
15061



As Beforetime
1910-WN



Rutilian
1806-MN



Burying
392-MN



Stag
763R-MN

BELEMNITE

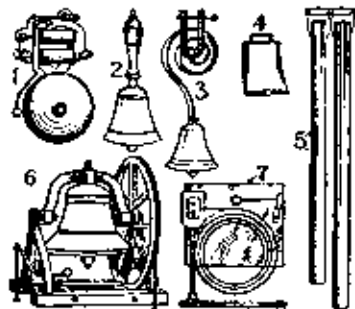
B



Belemnite 373R-MN



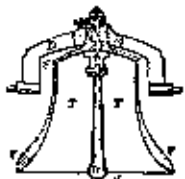
Belemnite 253R-W4



Bells 5241R-ML



Bell Buoy
984R-W4



Bell 415R-MN
B clapper; C canon
or ear; D yoke; M
mouth; P sound bow
S shoulder; T barrel



Bellbird
394R-MN



Bell Jar
266-WN



Bell Jar
431R-MN



Bell Crank
254R-MI



Bellerophon
790R-MN



Liberty Bell
(1876-1922)
420R-MN



Dumb-Bell
1373R-MI



Liberty Bell
420R-MN

BICYCLE

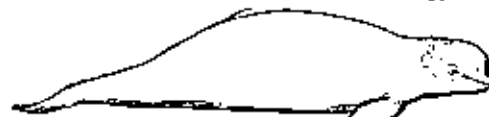
B



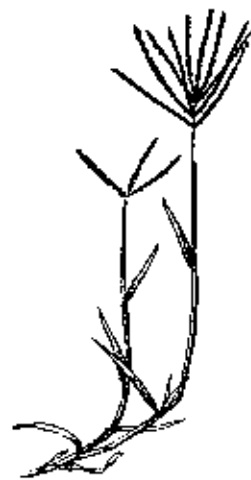
Bellows (Old Roman Lamp
with figure using a pair of
bellows) 421R-MN



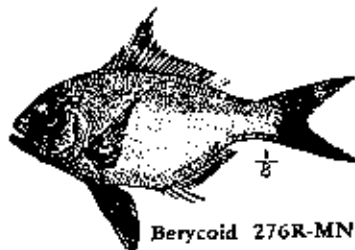
Bernicle Goose
398R-MN



Beluga Whale 441R-MN



Bermuda Grass
13939-MN



Berycoid 276R-MN



Beville
259R-WI



Bevel
256R-W4



Bevel Gear
13584-MN



Benlaceae 5856R-ML

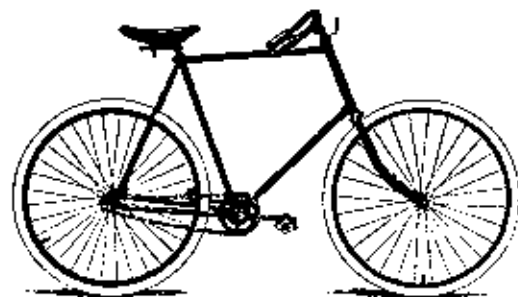


Bicorporate
260R-WI



Bicycle 442R-MN

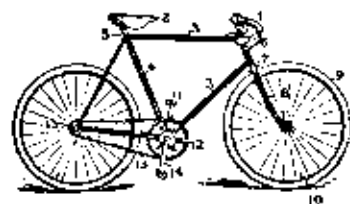
B



Bicycle 5554R-W

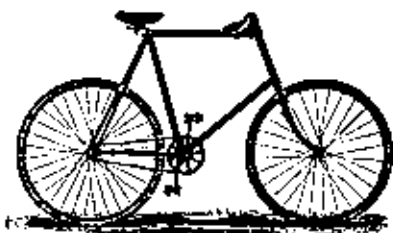


Bighorn 322R-MN



Bicycle 13586-ML

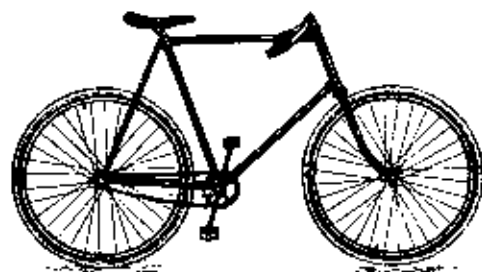
1 Handlebar; 2 Saddle; 3, 3 Frame Tubes; 4 Saddle Pillar; 5 Saddle Post; 6 Lantern Bracket; 7 Crown; 8 Front Fork; 9 Tire; 10 Valve; 11, 14 Pedals; 12, 15 Front & Rear Sprocket Wheels; 13 Chain.



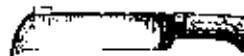
Safety Bicycle 5550R-W

Bilabiate
261R-W4

Billets 262R-W1

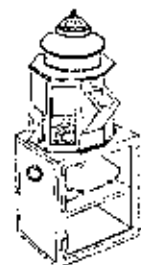


Bicycle 5553R-WN



Billhook 263R-W4

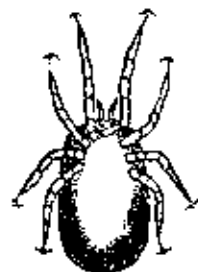
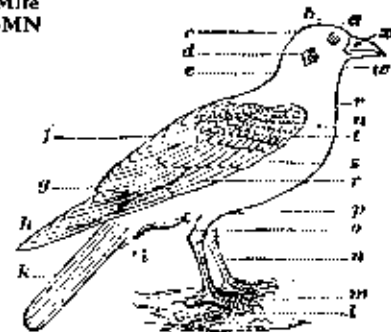
B

Bilocular
264R-W4Binnacle
265R-W4Binnaria
266R-W4Binnaria
of Starfish
371R-MN

Bipolar 785R-WN

Bird Mite
815R-MN

Bipolar 785R-MN

Bird Louse
of Duck
(*Philocterus
squalidus*)
395R-MNBird Mite
(*Dermanyssus
avium*)
323R-M

Bird (External Parts) 384R-MN
a Forehead; b Crown or Vertex; c Occiput; d Auriculars; e Cervix or Hind neck; f Tertiaries; g Secondaries; h Primaries; i Under tail coverts; k tail; l Outer or Fourth toe; m Inner or Second toe; n Tarsus; o Tibia; p Abdomen; r Greater wing coverts; s Median coverts; t Lesser coverts; u Bastard wing or Alula; v Jugular region; w Gular region; x Nostril.



Bitstock and Bit 626R-WN

B



Bird of Paradise
480-W



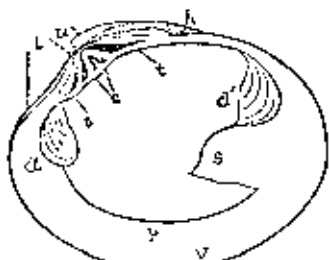
Bison 1374R-W4*



Bird of Paradise
851R-MN



Black Fly
328R-MN



Bivalve 327R-MN

Inside of right side of a Bivalve a Anterior and Posterior abductor muscle impressions; p Pallial line; s Sinus; c Cardinal tooth; t Lateral teeth; h Ligament; L Lunule; u Umbo; v Ventral margin.



Blackwall Hitch
4646R-M



Black Bird 156-M



Blacksmith's Forge
1405R-W4



Black Snake 268R-W4



Black Swan 3244R-W4

B



Blastoderm (Transverse section
Rabbit embryo of 7 days)
430R-MN



Blastoderm 430R-WN



Bleany (Butterfly Fish)
709R-MN



Blastoid
370R-MN



Bleany (*Blennius ocellaris*)
269R-W4



Blight
329R-MN



Bleenheim Spaniel 335R-M



Blister
164-MN



Blight (Apple)
330R-MN



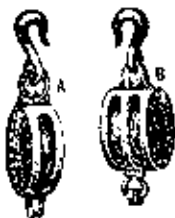
Block
(Long Tackle)
270R-WI



Block
(Clew-line)
270R-WI



Block
(Shoulder)
3177R-WI



Blocks: A single
sheave B double
sheave 752R-MN



Blockhouse 625R-MN



Blocks (Double &
Treble) 270R-WI

B



Bloodhound 368R-M



Blood Crystals 443R-WN



Bloodhound 853R-MN



Blue Grass
(*Poa compressa*)
4300R-MN



Blunderbuss
273R-W4



Blouse
(Dine?)
271R-W4



Blowpipes
272R-W4



Boat Hook 444R-WN



Blue Bent Grass
4299R-MN



Boar Head
756R-MN



Boar Fish 2990-WN

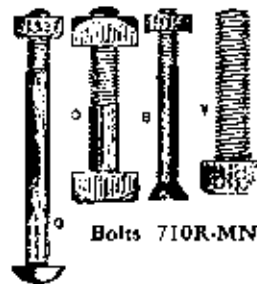


Boar Shell
386-MN

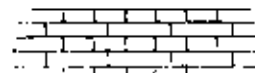
B



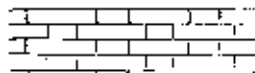
Bohemian Chatterer
4277R-MN



Bolts 710R-MN



Bond, Flemish Bond
275R-W4



Bond, English Bond
274R-W4



Book Scorpion
338R-MN



Book Press
2607R-W4



Booted Tarsus (t to t')
339R-MN



Borele 366R-MN



Bordure
276R-W1



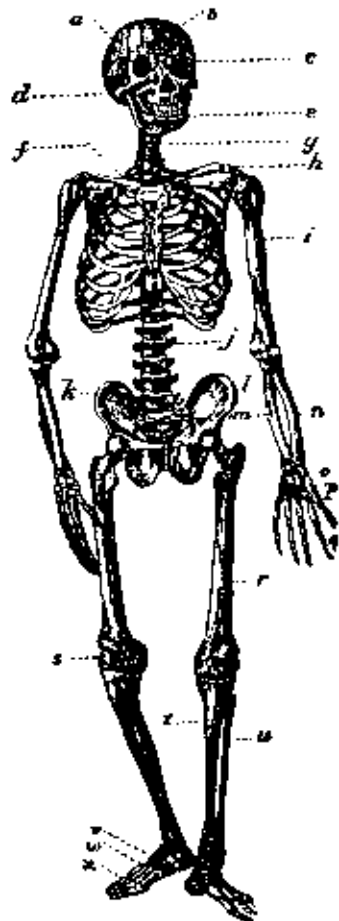
Botfly 340R-MN



Bonito 364R-MN

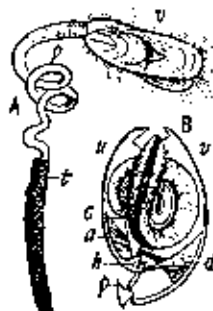


Botfly Larvae 341R-MN



Bony System 1374RR-M4

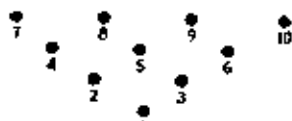
a parietal bone; b frontal bone; c orbit; d temporal bone; e lower jaw; f clavicle; g cervical vertebrae; h shoulder-blade; i humerus; j lumbar vertebrae; k ilium; m ulna; n radius; o carpus; p metacarpus; q phalanges; r femur; s patella; t tibia; u fibula; v tarsus; w metatarsus; x phalanges.



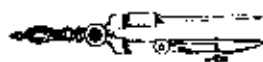
Brachiopoda 354R-MN
A Lypomata p Peduncle t Sand tube v Valves opened B Arthropomata a Adductor muscles d Divaricator muscles p Peduncle



Boris 4580R-M



Bowling Pin Formation 14066-ML



Bow-compass 278R-W4



Bow-pen 279R-W4



Bowfin 4262R-MN



Box Turtle 758R-MN



Brachiolaria of Starfish 962R-WN 1,2,3 Anterior Arms; 4,5 Posterior Arms; 6 Dorsal Arms; m Mouth; o Esophagus; s Stomach r Young Starfish



Branchiura (*Argulus foliaceus*) 360-MN



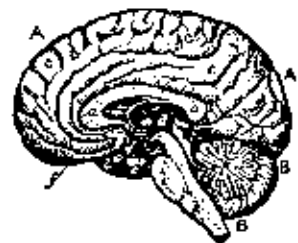
Brad 281R-W4



Brahma 282R-W4



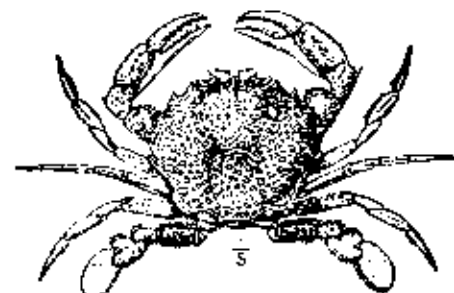
Brain 882R-MN



Brain of Man 361R-MN
Right half of Brain: AA Cerebrum BB Cerebellum aa Corpus Callosum ccc Convolutions d Third Ventrical e Pituitary Body f Olfactory Lobe g Optic Nerve i Pons Varolii k Medulla Oblongata



Brambling 425R-WN



Brachyura (*Platyoniscus ocellatus*) 4279R-MN



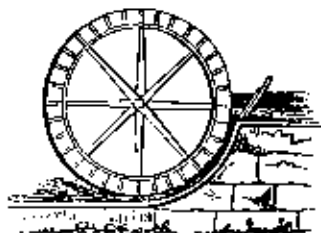
Branchial Arches 2845-MN

BREAST

B



Breeze Fly of Europe (*Zabrus borealis*)
804A-MN



Breast Wheel 878R-W4



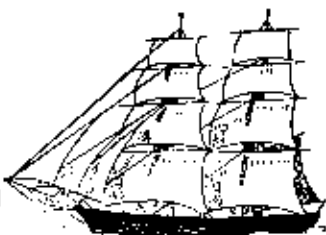
Brine Fly 348R-MN



Brig 283R-W4



Brittle Star 349R-MN



Brig 4355R-M



Brown Thrush
408R-MN



Bridge of Sighs
1314-ML



Brutozoum giganteum
(footprint) 376R-MN

BUDS

B



Brussels Sprouts
754R-MN



Bubale 740R-MN



Bream
(*Abramis brama*)
347R-MN



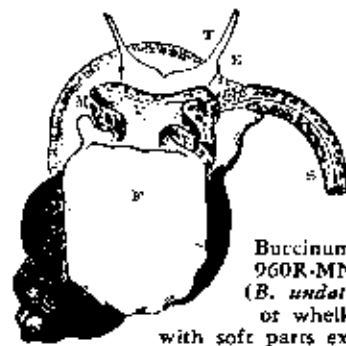
Bucentaur 284R-W4



Brussels Sprouts
473-WN



Bryozoa
400R-MN



Buccinum
960R-MN
(*B. undatum*,
or whelk)
with soft parts expanded as in life. T Left tentacle,
with left eye (E) at base; S Siphon; F Foot; M Mantle.



Bristletail
691R-MN



Buddha
5355R-M



Buds
9147-M

BUFFALO

B



Buffel Duck 446R-MN



Buffalo Grass 1301R-MN



Buffalo
738R-MN



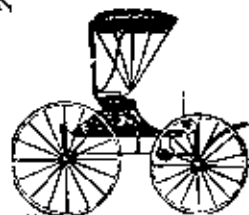
Buffalo
(Cape Buffalo)
198-WN



Buggy 285R-W4



Bug (*Lygus lineolaria*)
2751R-WN



Buggy 286R-W4



Bug 4135R-M



Bugs (Wheel Bugs) 44665R-M



Bulb of Meadow
Lily 288R-W4



Burbot 784R-MN



Bur Fish 359R-MN

BURNISHER

B



Bull Terrier 868R-MN



Bulldog 351R-M



Bunting
623R-MN



Bull Terrier 524-WN



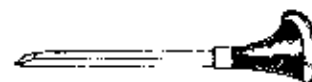
Bullseye
9155-ML



Bullhead 3634R-MN



Bunch Grass
(*Stipa viridula*)
2893-WN



Burin 289-W4



Bumblebee 230-MN



Bunch Grass
(*Ericoma cuspidata*)
303R-MN



Burnisher 290R-W4

B



Bust 294R-W1



Bustard Bird 294R-W4



Busby 469-WN



Busby 291R-W4

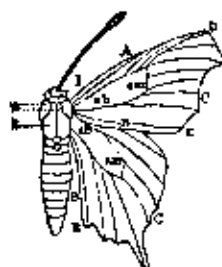
Cc



Butress 295R-W4



Butteris 456-WN



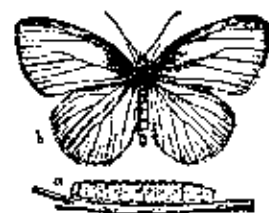
Butterfly 478-MN



Cacomixle 663R-MN



Cable 3887R-MN



Cabbage Worm Butterfly a Larva, b Adult 717R-MN



Buzzard 377R-M



Buskin 292R-W4



Caboched 447R-W1

Cc?



Cabrilla (Serranus clathratus) 876R-MN



Cabriolet 448-M4



Cactus Wren (Campylorhynchus bruceicapillus) 284-W4



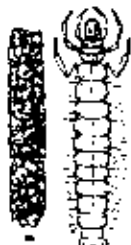
Cactus 8124-W4

C

C



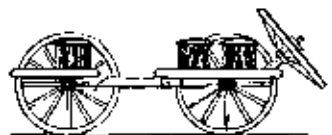
Caddice Fly 980R-MN



Caddice
a. its case
718-MN



Caddice Fly 534-WN
(*Phryganea striata*)



Caisson and Limber 901R-W4



Calash 451R-W4



Calicoback Bug 721R-MN
(*Murgantia histrionica*)



Caddiceus
450R-W4



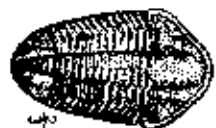
California Type Case 56-187-M



Caulking Iron for Iron
Work 824R-W4



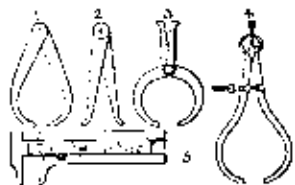
Caulking Iron for Ships
561-W



Calymene 1005R-MN
(*C. Blumenbachii*)



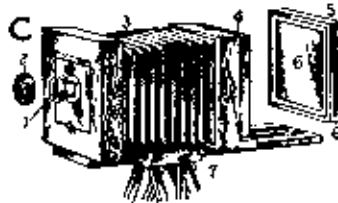
Calamite
720R-MN



Calipers 5393R-ML
1 Outside; 2 Inside; 3 Double;
4 Spring; 5 Slide.



cc Calyx.
1783R-M



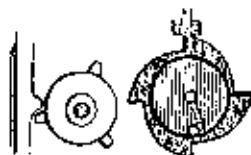
Camera 5589R-M



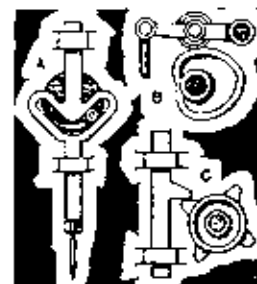
Camera with two
tubes, for taking ster-
eoscopic pictures.
525-WN



Calyx
900R-W1



Cams 453-W4



Cams 917R-WN
A Needle-bar Cam; B
Hearr Cam; C Cam Wheel



Cameo 1109R-MN



Cam
453R-W1



Cancer 764R-WN



Candelabrum
454R-W1



Canister
1059-WN



Canister
873R-WN



Cankerworm 722R-MN

C



Cannon 455-W4
(Muzzle-loading) A Formerly called
Cascabel; B First Reinforce; C Second
Reinforce; D Chase; E Swell of Muzzle



Canoe of Carib Indians
456R-W9*



Cardioid
700R-MN



Curangoid (*Caranx hippos*)
933R-MN



Capercailzie 796R-MN



Canopy
457R-W4



Canopy
224R-WN



Cant Hook 13750-MN



Carina
1172R-MN



Carapato (*Amblyomma
rotundatum*) 723R-MN



Cantharis
(*C. vesicatoria*)
150082-MN



Canton
459R-W1



Capstan
8092-W



Capstan 871-WN
a Drumhead; b Sockets
or baches; c A pawl;
d Pawl ring.



Capstan 871R-MN



Caracara 801R-MN



Capsules 896R-MN
a Datura; b Poppy
c Gentian.



Cantilever 458R-W4



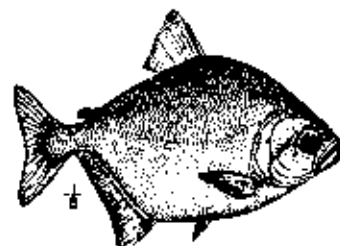
Capuchin 935R-WN
(*Cebus capucinus*)



Cardinal (*Cardinalis
cardinalis*) 13017-MN



Carabid (*Carabus
terratus*) 638-MN



Caribe (*Serrasalmo scapularis*)
2976-WN

C



Caribou (*Rangifer caribou*)
783R-MN



Carpophore
859R-MN



Carp (*Cyprinus carpio*) 630R-W4



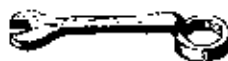
Carpet Beetle 858R-WN
(Buffalo Bug)
a Adult; b Pupa; c Larva



Carpintero 640R-WN
(*Melanerpes formicivorus*)



Carpenter Bee Nest
305-WN



Carriage Wrench
4152R-M



Carrier 462R-W4



Carrion Crow 594R-WN



Carronade 463R-W4



Carry Arms
885R-MN



Cartridge 872R-WN



Cartridge Box
464R-W4



Car Wheel
465R-W4
a Tread; c Flange;
e Disk; n Hub



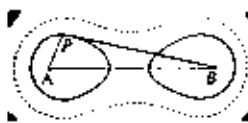
Common Cassowary
(*Casuarus galeatus*)
560-WN



Casque
469-W4



Carnivora (Skull of
Wolf) 944R-WN



Cassinian Oval
1642-WN



Castor & Pollux 5568R-M



Castor
472-W4



Caryatid
466R-W4



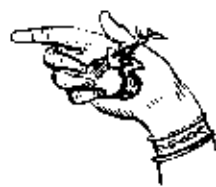
Casemate 467R-W4



Cassiopeia's Chair
748R-MN



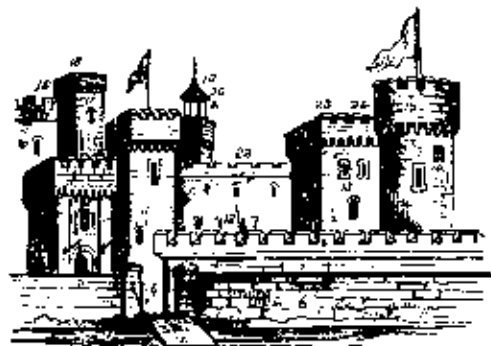
Cashew Branch with Fruit
(Hypocarp and Nut) 468-W4



Castanets 470R-W1

C

C

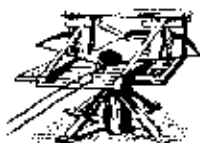


Castle 473R-W4

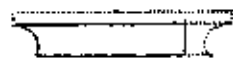
1 Moat; 2 Draw-bridge; 3 Wicket; 4 Sally-port; 5 Portcullis; 6 Outer Walls; 7 Parapet; 8 Rampart; 9 Loopholes; 10 Escutcheon; 11 Bulwark; 12 Sentinel; 13 Magazine; 14 A Cell; 15 Donjon or Keep; 16 Barracks; 17 Barbican; 18 Watchman; 19 Turret; 20 Chapel; 21 Belfry; 22 State Court; 23 Merlons; 24 Embrasures.



Catapult 475R-W4



Catapult 225R-W4



Cavetto 478R-W4



Catamaran 474R-W4



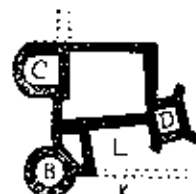
Cathetometer 477R-W4



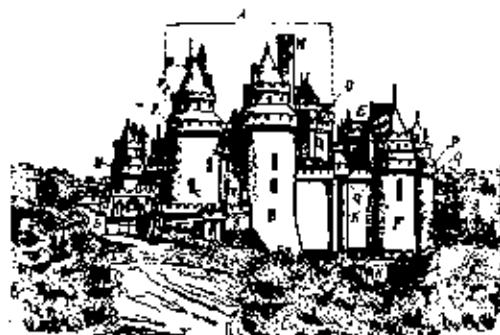
Catherine Wheel 476R-W



Catenary 5648R-M 1864



Castle (Plan of Donjon or Keep) 980R-MN



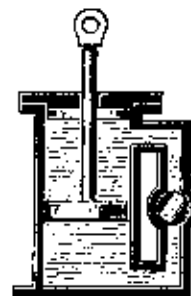
Castle at Perreionds, France MN
A Donjon or Keep; D Square Tower; E Chapel; K Postern Gate; M Turret; N Turret; P Battlements; Q Machicolations.
The house of every one is to him as his castle and fortress. . . -Coke



Caterpillar of Swallowtail 643R-MN



Caucasian Race 4406R-WN



Cataract Pump 910R-MN



Catbird 642R-MN



Catboat or Una Boat 2652-WN



Centipede (*Scopopendra cingulata*) 13020R-MN

C

C



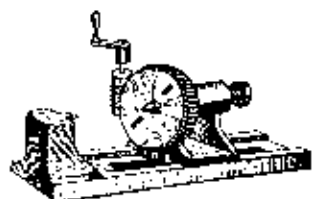
Cedar Bird 646R-MN



Cell Division 1358R-WN



Cello 5937R-M



Center of Planer 479R-W4



Cephalaspis Lyellii 480R-W4



Cercaria 322-WN



Cephalopod 4841R-MN



Cerastes (*Vipera cerastes*) 4402R-WN



Cestus 484R-W4



Ceres 482R-W4



Cetatodus (*C. miolepis*) 741R-MN

C



Carina 461R-W4



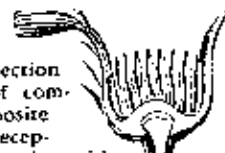
Cernuus 483R-W



Ceto (*Scomberomorus caballa*) 734R-MN



Chaetodont 4379R-MN



Section of composite receptacle, with flowers removed to show the Chaff.

Chaff 881R-W4



Chab 862R-MN



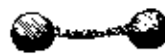
Cerastes 481R-W91



Chain Shot 835R-MN



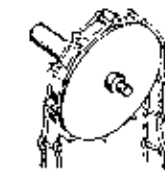
Chaffinch 906R-MN



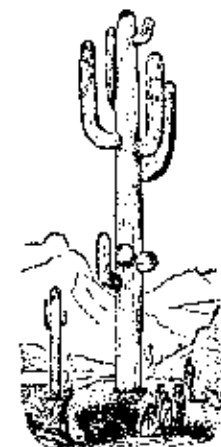
Chain Shot 487R-W1



Chain Pump 486R-W4



Chain Wheel 874R-WN



Cereus (*C. giganteus*) & Indians 4890R-MN



Chain Wheel 488R-W4

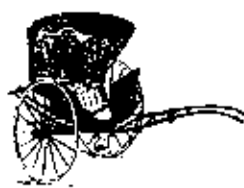
C



Chair 5860R-ML



Chair 13411-M



Chaise 489R-W4



Chalcid Fly 650R-MN



Chapeau 491R-W4



Chamfer 490R-WN



Chameleon (Not wiser) 649R-MN



Chasuble 1114R-MN



Chaparral Cock 652R-MN



Cheese Mite 937R-WN



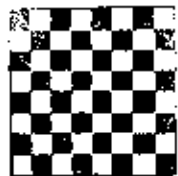
Checky 494R-W



Charge Bayoner 891R-MN



Chati 653R-MN



Checkerboard 1067R-W4

This checkered narrative. -Macaulay

C



Cheiroptera 902R-W



Cheiropter 336-WN



Cheirotherium 2858-WN



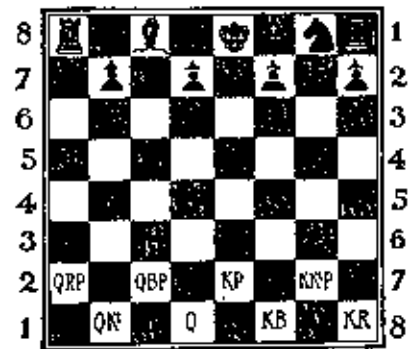
Cheetah 718R-MN



Chessboard 54220-ML



Cheirotherium 2859-WN



Chessboard 5560R-ML



Chess Grass 4804R-MN

C



Chemisette
495R-W4



Cheval-de-frise
8103-W



Chelonia 4280R-MN



Cheval-de-frise 496R-W4



Chiastolite
1174R-WN



Chickadee
1178R-MN



Chevron 498R-W1



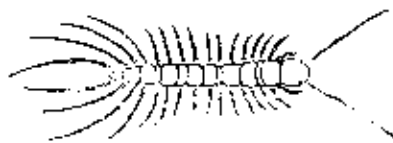
Chewink 692-MN



Chilognartha 65R-MN



Chickadee (Blackcap)
855R-MN



Chilopoda 65R-MN



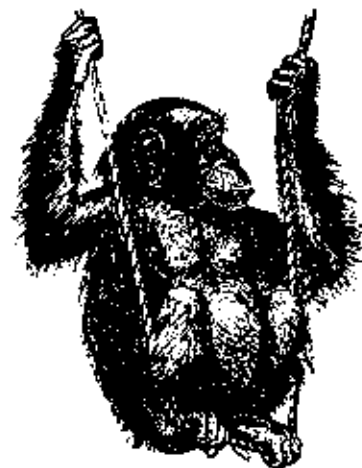
Chief Hare 4194R-MN



Chief
499R-W4



Chickaree 907R-WN



Chimpanzee (female) 985R-MN



Chimaera 4399R-MN



Chippy 689R-MN



Chigoe 101R-MN
a. Adult female as removed from a human foot; natural size.



Chisels
5616R-ML



Chipmunk 656-MN



Chisel
501R-W4



Chinchilla 932R-MN



Chinchilla 500R-W4

C

CHOCK

C



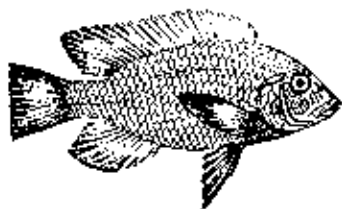
Chock 954R-WN



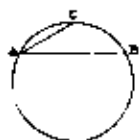
Chough 843R-MN



Chub 629R-WN



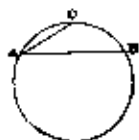
Chromid 658R-MN



Chord
AC, AB, chords
502R-W4



Chondrostei
4338R-WN



Chord
AC, AB, chords
502R-M4



Chock 954R-MN



Chrysalis 659R-MN



Chub 903R-MN



Chromid 4380R-MN

CIVET

C



Chuck (3-Jawed)
505R-W4



Cirrose Leaf
513R-W4



Cipher
509R-W4



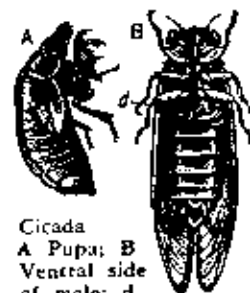
Circular
4888-M



Circle
511R-M4



Cisco 2391R-MN



Cicada
A Pupa; B
Ventral side
of male; d
Musical apparatus.
969R-WN



Circumferentor 512R-W4



Cinnamon Leaf &
Blossom 507R-W4



Cipher
509-M4



Ciliate Leaf
1018R-MN



Cicada 9314-ML



Circinate Leaf
510R-W4



Cinquefoil
508R-W4



Ciliated Leaf
506R-W4



Civet (*Viverra civetta*) 698R-MN

CLACK

C



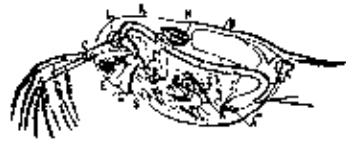
Clack Valve
953R-W4



Clack Valve
A Valve opened
B Valve closed
515R-WN



Clarence 517R-W4



Cladocera 13980-MN
AA'A' Alimentary Canal; H Heart;
B Egg Sac; L Liver; E Eye; C Antenna;
G Cephalic Ganglion; S Shell Gland.



Clamps
516R-W4



Clavate Shape
520R-W4



Clarinet 519R-W4



Clarion
518R-W4



Clidastes 4388R-MN



Clarinet 1213R-MN



Cliff Swallow
960R-MN



Cleat 955R-WN



Clepsydra
4367R-W4

You can never look back.



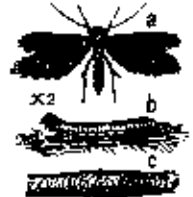
Cleat 955R-MN



Clews 714R-WN
A Heart Clew; B Ring Clew



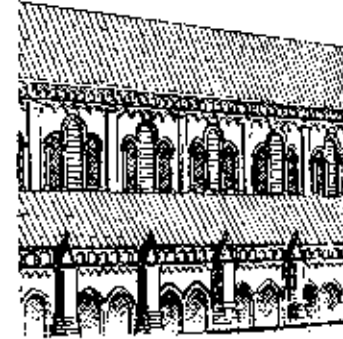
Clog 524R-W4



Clothes Moth
986R-MN



Clio 525R-W4



Clearstory 969R-MN



Clione
1897R-M



Clou 836R-M



Clumber Spaniel 803R-MN



Clover Worm
1021R-MN



Close
525R-WI



C Clef
1107R-WN

Don't look back.



Clou 836R-M

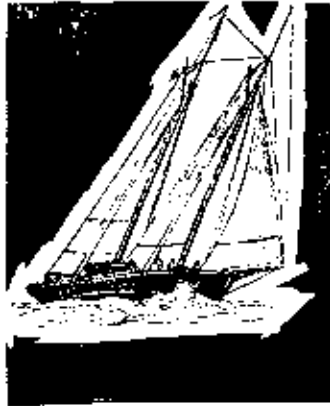


Clefs 14247-ML

CLUTTER

C

C



Closehauled Schooner 1213R-WN



Clypeate 528R-W4



Coach 529R-W4



Clutch 527R-W4



Closehauled Schooner 1213R-MN



Coat of Mail 530R-M1



Clutch 914R-WN



Coccinella 662R-MN



Coaita (*Ateles paniscus*) 4389R-MN



Coach Dog 734R-MN

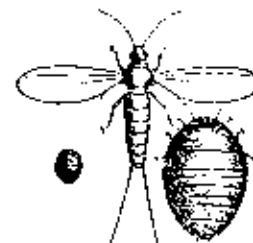


Coccus 413R-WN

C



Cockatoo 532R-W4



Cochineal 732R-MN



Cochineal Fig (*Opuntia cochinealis*) 531R-W4



Cockle 1175R-W1



Cockatoo 916R-MN



Cocoa 534R-W4



Cockroach (Common) 946R-MN



Cockroach 946R-WN



Cold Chisel 911R-WN



Cockroach 1374RR-M1



Cold Chisel 911R-MN



Cocker Spaniel 798R-MN



Codling Moth 13867-MN

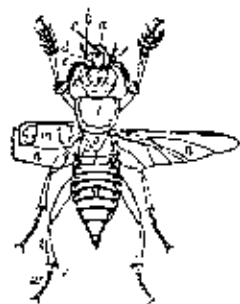


Cod 668R-MN

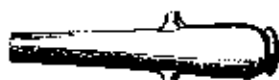


Cog Wheel 536R-W4

C



Coleoptera 948R-WN



Columbiid 826R-W4



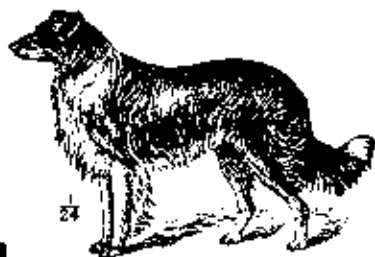
Colugo 908R-WN



Collar 537R-W4



Collars (On a shaft) 952R-WN



Collie 1190R-MN



Colliope 876A-MN



Colossus of Rhodes 8080-WI



Commensals 381-WN
aa Polyps of *Epizoanthus Americanus*; b Hermit Crab (*Eupagurus pubescens*)



Coly (Long-tailed) 994R-MN



Columnar Structure 1023R-MN



Comet (Donati's) 5889&90R-WI



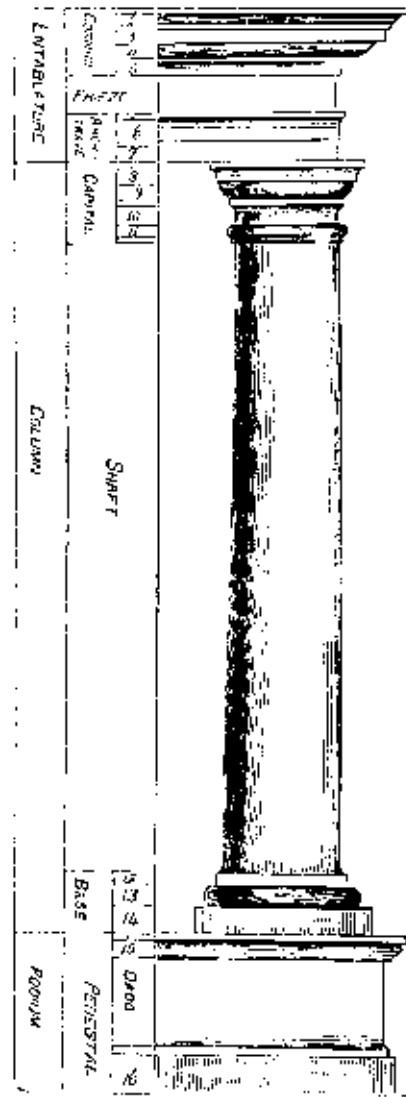
Comet of 1811 8085-WI



Compass 540R-W4



Compass 8148-W



Column (Roman-Doric) 538R-W4

C

C



Compony
542R-WN



Compasses 541R-W4



Compsognathus longipes
694R-MN



Composite Order
544R-W4



Composing Stick 543R-W4



Composing Stick
5859R-ML



Composite Order
8141-W



Concertina
1282R-MN



Cone Shell 666R-M
(*Conus marmoreus*)



Concertina
546R-W4



Conch (*Strombus pugilis*)
665R-MN



Concretions 1024R-WN



Cone
921R-MN



Conical Sections 549R-W4



Cone Pulley
545-WN



Cone Pulley
545-MN



Cone
548R-W4



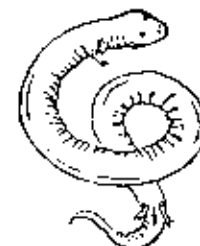
Cone of Pine
918R-MN



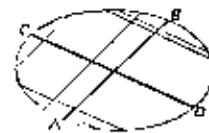
Conger Eel 992R-WN



Conical Pulley
2617R-W4



Congo Snake
667R-MN



Conjugate Diameters
(AB, CD) 1025R-MN



Conjugation
668R-MN



Conjugate
550R-W4



Constricted Pod
1192R-W4



Console 552R-W4



Conoid
922R-M4



Console Table
553R-W4

C

C



Conferring Knighthood
742-DI



Constrictor
666D-I



Cork-tree 267-D9



Cornrake 267-DI



Cuban Blood-hound 143-D4



Copepoda 863R-M
(*Cyclops coronatus*)
1a Antenna; 2a Antennule; c Carapace; d Intestine; b Egg Sacs; c Caudal Appendages



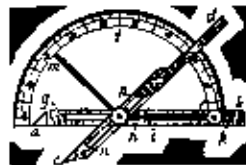
Commodore 4433R-MN



Coot (*Fulica atra*)
1189R-WN



Corn Fly Larva
945R-MN



Contract Goniometer
1737R-WN



Coralloid Root
557R-W4



Corn
483-MN



Corn
805R-WN



Coracles 1210R-MN



Cordage 1214-MN
A Hawser-laid Rope;
B Shroud-laid Rope
(a) Heart; C Cable-laid Rope



Copying Press
827R-W4



Corinthian Order
561R-W4



Corbels 558R-W4



Corium 562R-W4



Corkscrew
563R-WN



Corn on the Cob 9163-M



Coemotant
(*Carbo cormorantinus*) 564R-W4



Corn Fly Larva
945R-WN



Corn 2194R-M

C

C



Corymb
572R-W4



Cornet or piston
566R-W4



Cornice 567R-W4



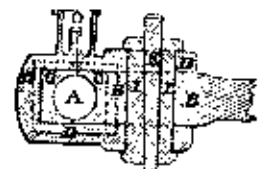
Cornucopia
568R-W4



Corona 750R-MN



Corona of a Flower
570R-W4



Cotter or Key (K)
573R-W



Cordate Leaf
559R-W4



Cotter Cotter
1140R-MN 1140-WN
a Cotter, fastening
together parts b & c



Cotton Plant
(*Gossypium herbaceum*)
575R-W4



Cotton Stainer
1006R-MN

C



Cottontail 799R-M



Cottontail (*Lepus sylvaticus*)
4369R-WN



Cotton Worm
(Adult) 1010R-M



Cotyledon 576R-W



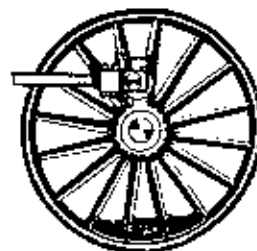
Couchant
577R-WI



Cotton Worm
1011R-MN



Counter 1212R-MN
a Stern; b Counter;
c Rudder



Counterbalance 828R-W4



Counter-courant
578R-W4



Countershaft and appurtenances
1146R-WN as Shaft; b Belt from line
shaft; c Belt to machine; d e Tight
& loose pulleys; f Cone pulley; g Belt
shifter rod; h h Hangers



Counterchanged
1123R-MN



Counter-paly
1489R-WN

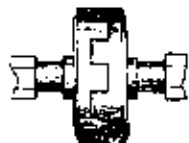
C



Coupe 579R-W4



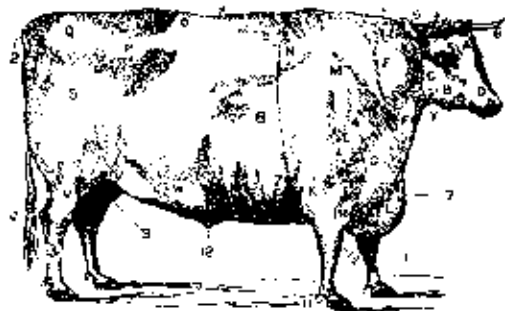
Courant 581R-W9



Coupling-Box 580R-W1



Cowbird (*Molothrus ater*) 673R-MN



Cow W
Give them great meals of beef. - Shak.



Coupling 918R-MN



Cowslip 690R-MN



Cowrie 1004R-MN



Coypu (*Myopotamus coypus*) 909R-MN



Coyote (*Canis latrans*) 306-MN



Crab Louse (*Phthirus pubis*) 940R-MN



Crab (*Callinectes hastatus*) 1207R-MN



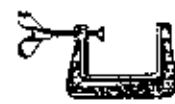
Crab Grass 4305R-MN



Cranks 254R-W1
1 Single; 2 Double



Crane 582R-W4



Cramp 13028R-M



Crank (Bell) 254.5-W1



Crane (*Porzana maruetta*) 993R-WN

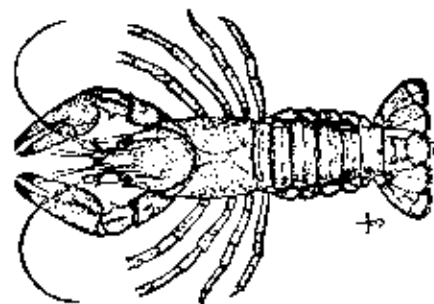


Crappie (*Pomoxys annularis*) 745R-MN

C



Crayfish 583R-W4

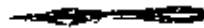


Crayfish (*Cambarus affinis*)
1233R-MN

Like crawfish covering inside their shells
Each new layer conceals a lonelier bell.



Crayon 837R-MN



Crayon 584R-W4

Let no day pass over you . . . without
giving some strokes of the pencil or the
crayon. - Dryden.



Creeper
(*Certhia familiaris*)
574R-MN



Crenate 585R-WI
(Acutely, Obtuse.y)



Crest 588R-W4



(Doubly.)



Crenate
Acutely.
585R-M4



(Obtusely)



Crescent
920R-W4

The cross of our faith is replanted,
The pale, dying crescent is daunted.
- Campbell



Crescent
920R-M4

C



Crocodile (*Crocodylus vulgaris*) 1196R-M



Crocodile 18-W



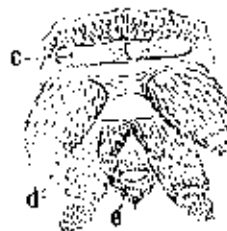
Cressets 5525R-W1

Starry lamps and blazing cressets, fed
With naphtha and asphaltus.

- Milton.



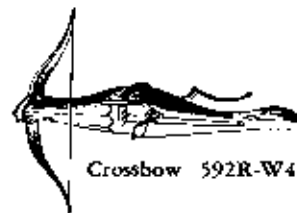
Cricket 1022R-MN
(*Gryllus neglectus*)



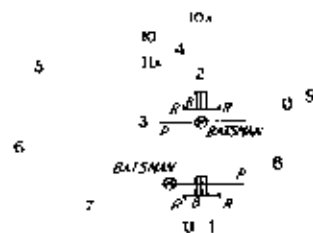
Cribellum 410-MN
c Cribellum of Spider; d
d Spinnerets; e Anus



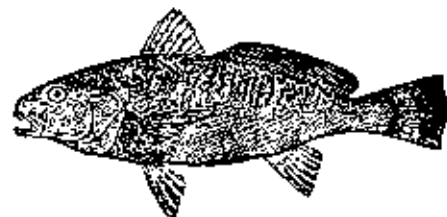
Cresset
5525R-MI



Crossbow 592R-W4



Cricket 5769R-M



Croaker (*Micropogon undulatus*)
746R-MN

C



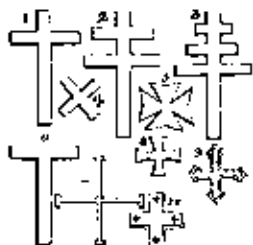
Crosiers 590R-W4



Cross-crosslet 593R-W1



Cross Bottony 277R-W1



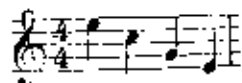
Crosses 591R-W4

- 1 Latin 2 Double 3 Triple
- 4 St. Andrew's 5 Maltose
- 6 Egyptian 7 Jerusalem
- 9 Cross patronce 10 Greek

Behind a darker hour ascends;
the altars quake, the crossier bends.
W. Scon



Crossopterygian (*Polypterus bichir*) 809R-WN



Crotchet.
Crotchets 5542R-M4



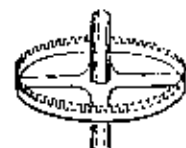
Croton Bug 1208R-MN



Crow (*Quiscalus quiscula*) 678R-M



Croton Bug (*Ectobia Germanica*) 1208R-WN



Crown Wheel 596R-M4



Crossbill 683R-WN (*Loxia curvirostra*)

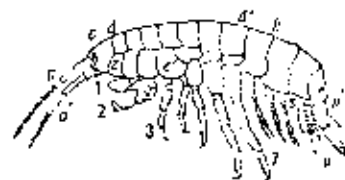


Crown Wheel 596R-W4

C



Cryophorus 599R-W4



Crustacea 1193R-MN



Cryophorus 599R-MN



Crunode 1298R-WN



Cube 600R-W4



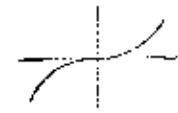
Crucibles 598R-W4



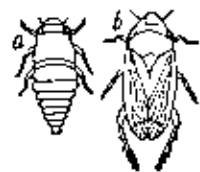
Cuckoo, European (*Cuculus canorus*) 681R-MN



Cube 1273R-WN



Cubical Parabola 698R-MN



Cuckoo Spit 641R-MN
a Larva; b Mature insect



Cuckoo, Yellow-Billed (*Coccyzus Americanus*) 683R-MN



Cuirass 601R-W4



Crystallites 1147R-MN

C



Cumacea (*Diatylis quadrispinosa*)
643-MN



Cunner (*Ctenolabrus adspersus*) 684-WN



Cusk (*Brosmus brosme*) 1237R-MN



Curculio 1003R-MN
(*Conotrachelus nenuphar*)

C



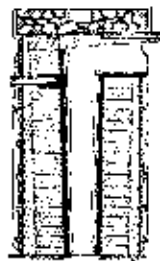
Cuneate Leaf
608R-W4



Cupola 604R-W4



Cupola Furnace
1027R-WN



Cupola 604R-W



Cupola
8116-W



Cuspidate Leaf
609R-W4



Cupule
605R-WN



Curve 608R-WI



Crested Curassow (*Crax alector*)
606R-W4



Curb
Roof
607R-W4



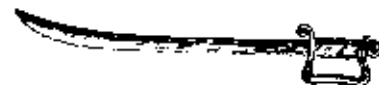
Crested Curassow
(*Crax alector*)
437-WN



Curworm 1238R-MN
(*Agrotis annexa*)
a Larva; a' Head of Larva;
b Pupa; c Adult Moth



Cusp
1144R-MN



Cutlass 611R-W4



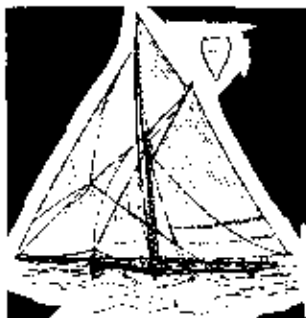
Curling Stone
5819R-ML



Custard Apple
610R-W4

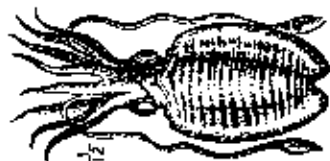
CUTTER

C



Cutter 673-WN

The peculiar outline of the hull is shown below the water, as also the mass of lead (L).
a Section of hull.



Cuttlefish 1235R-MN



Cutting Nippers
2360R-WN



Cutter 1211R-MN



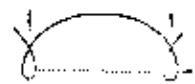
Cuttlefish 613R-W4



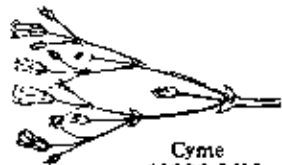
Cyclamen
1241R-MN



Cyclamen
1026R-W



Cycloid (Curtate)
702R-MN



Cyme
1299R-MN

CYPHONAUTE

C



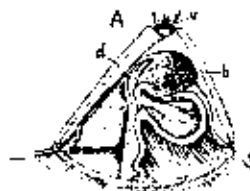
Cymbals 610R-W4



Cylinder
614R-W1



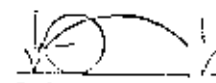
Cyphonaute 1230R-WN
A Side view; B End view;
C Band of cilia; c Mouth;
b Stomach; d Body cavity;
v Aboral cluster of Cilia;
s Shell; s Oral surface.



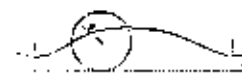
Cyphonaute 1230R-MN
(*Sepia officinalis*)



Cymbals
5528R-W



Cycloid (Common)
701R-MN



Cycloid (Prolate)
703R-MN



Cutter or Sloop
4359R-MN

D

D

Dd



Dab 1300R-MN



Dab 2584R-M



Dace (Black-nosed) 712-WN
(Rhinichthys atronatus)



Dactylogy 5821-ML



Dachshund 1281R-MN



Dagger 1032R-W4



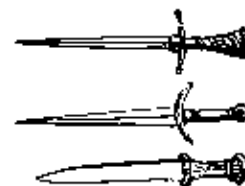
Dalmania (*D. limularus*)
1161R-MN



Dagger 1030R-W4



Daisy 1187R-MN
(Bellis perennis)



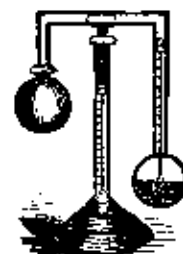
Daggers 1030R-MN



Danaide 1033R-W1



Dagger 1031R-W4



Daniell's Hygrometer 13979-MN



Daman (*Hyrax syriacus*) 1148R-MN



Dandie Dionmont 1280R-WN

DANISH

D



Dasyure
(*Dasyurus viverrinus*)
1199R-MN



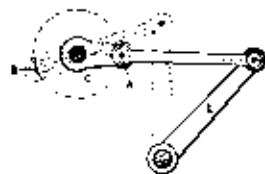
Danish Dog 1170R-MN



Datura 1034R-W4
(*D. stramonium*)
a Transverse section
of seed capsule



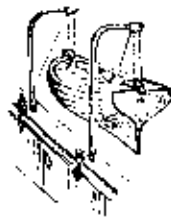
Dead-eyes
1258R-MN



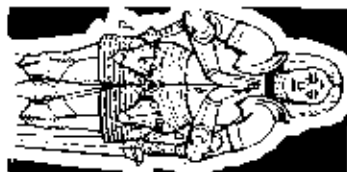
Dead Center 1228R-WN
A B Dead Centers;
C Crank; L Lever



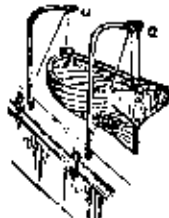
Dead-eyes
705-WN



Davits
1266R-W4



Dead Knight 3792R-WN



Davits
13982-MN

DEERHOUND

D



Deadly Nightshade
(*Atropa Belladonna*)
2433R-MN



Decapoda (*Palaeomonetes vulgaris*)
(American Shrimp) 1268R-MN



Dehiscent Silicula
1040R-W1



Deadly Nightshade
1471-WN



Decomound
1037R-W4



Deathwatch 1035R-W1
(*Anobium tessellatum*)
*I did not hear the dog howl,
mother, or the deathwatch beat.*
-Tennyson



Debruised
1036R-W4



Decoration
1038R-W4



Decurrent
1039R-W1



Deer 1224-MN

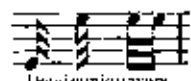


Deerhound 1232R-MN

D



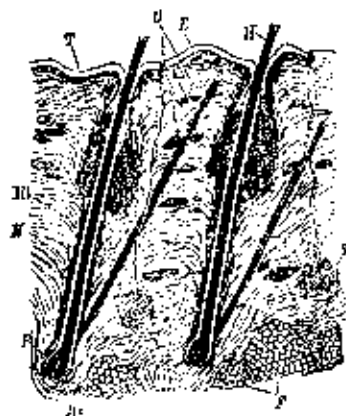
Delamination 1150R-MN
Delamination of the Embryo of Geryonia



Deliaemiquavers.
5516R-MN



Delthyris
1157R-MN
(*Spirifer sulcatus*)



Dermis 600-M
Vertical section of the skin.



Deltoid
1041R-W1



Demoiselle
1217R-MN
(*Anthropoides virgo*)



Dextrorse
657-WN



Demilunes 644-MN
Section through salivary gland of a dog: a a Demilunes; b b Mucin cells; c c Alveoli



Dentate
1042-W4



Dermastes
1132R-M
(*D. lardarius*)



Deneb 5567R-ML



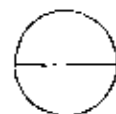
Desman 762-WN



Derrick Crane
1043R-W4



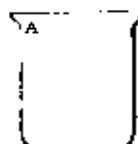
Desman (*Myogale moschala*)
1279R-MN



Diameter
1048R-W4



Diandrous
1049R-W4



Dexter
1044R-W1



Dhole 1219R-MN



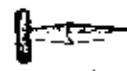
Diadelphous Stamens
1045R-W4



Dial of Timepiece
13989-MN



Diamond
2010R-W



Dibble
1059R-W4



Dice
1245R-W



Diaper 968-MN

D

D



Dichotomous Stem
1057R-W4



Dickcissel 1257R-MN
(*Spiza Americana*)



Discharger
1057R-W1



Dingo (*Canis dingo*)
1284R-MN

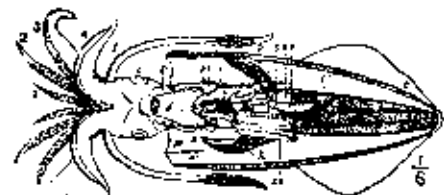


Diopsis 1375RR-W1



Diodon
1055R-W4

D



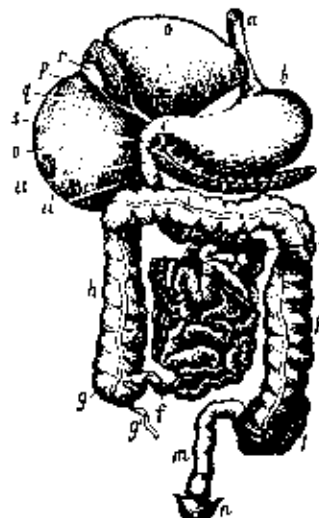
Dibranchiata (*Loligo Pealei*) 1262R-MN
1,2,3,4 Sessile Arms; t Tentacular Arm; c Eye; e Ear; d Siphon; h Anus; i Ink Bag; K one of the Gills; j Liver; m Mantle



Didelphys (*D. murina*)
4291R-MN



Diploid
1791R-WN

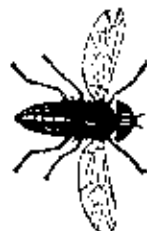


Digestive Apparatus 1292R-WN

a Esophagus; b Cardiac end of Stomach; c Pyloric end of Stomach; d Duodenum; e-f Convolutions of Small Intestines; g Caecum; g' Vermiform Appendage of Caecum; h Ascending Colon; i Transverse Colon; l Sigmoid Flexure; m Rectum; n Anus; o,o Lobes of Liver raised & turned back; p Hepatic Duct; q Cystic Duct; r Gall Bladder; s Common Bile Duct; t Pancreas; u Pancreatic Duct.



Dipper
1225R-WN



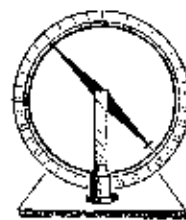
Diptera
1385R-MN



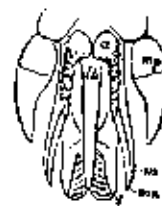
Diptera
621R-WN



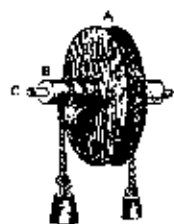
Diestock with Dies 662-WN



Dipping Needle
1056R-WN



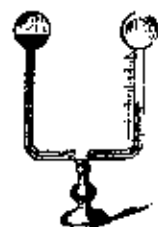
Diptera
610-MN



Differential
4033R-W9



Differential Motion
1053R-W4
A Small cylinder;
B Large cylinder;



Differential Thermometer
1265R-WN

DISCONCERT

D



Didynamous?
1052R-W4



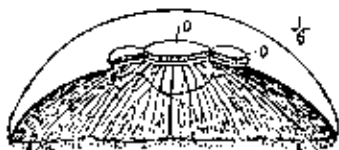
Diver 1060R-W4



Discoid Flower
755-WN



Displayed
1059R-W1



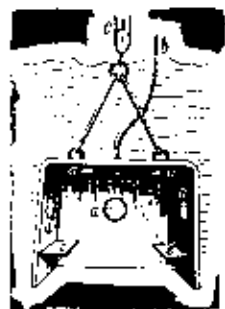
Discophora 1287R-MN



Disk 1058R-W4
d disk; r.r. rays



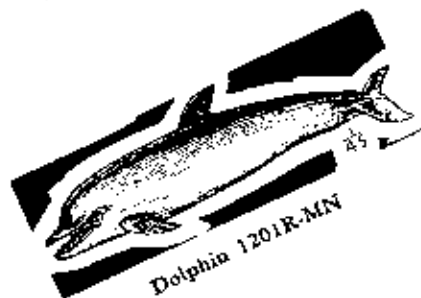
Discophora 1287R-MN



Diving Bell
1263R-WN



Dodecahedron
1205-WN



Dolphin 1201R-MN

DORMANT

D



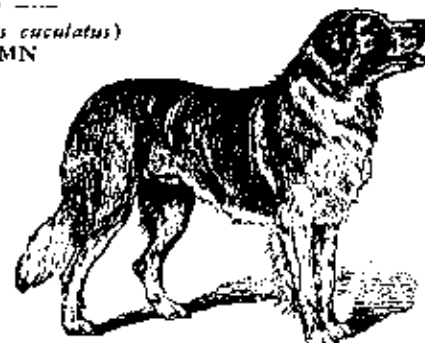
Dodo (*Raphus cuculatus*)
1289R-MN



Dog Cart
1061R-W4



Dog Whelk
1226R-MN



Dog 1191-MN



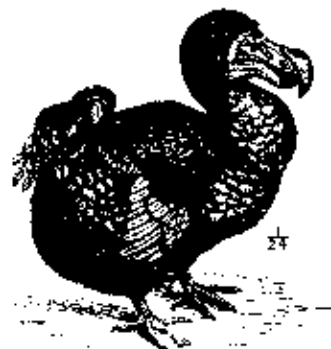
Dominoes
1246R-WN



Dormant
1063R-W1



Dolphin 1201R-WN

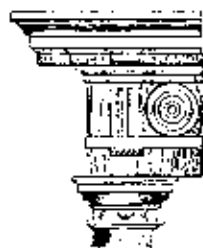


Dodo (*Didus ineptus*)
1289R-MN

D



Dormer
1064R-W4



Doric Order
1062R-W4



Dormer
5527R-W



Doris 1157R-MN



Drift
795-WN



Dove 1158R-MN



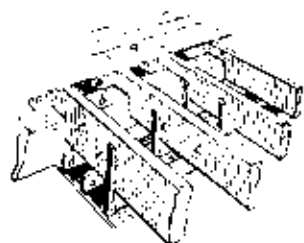
Doubly Crenated
585R-W4



Dormouse 1290R-MN



Dowels 706-WN



Double Floor 1286R-W4



Drifters? 571-W



Dovetail Joints 1297R-W



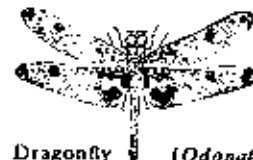
Dragon 1065R-W4



Dragon 1065R-W4



Dragon
1105R-WJ



Dragonfly (Odonata)
1159R-MN



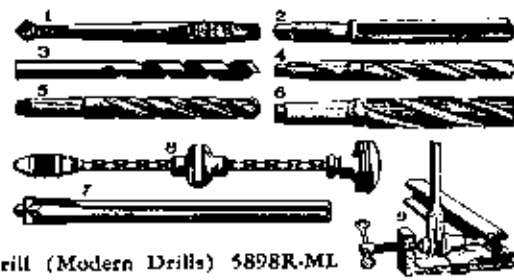
Dragoon-bird 1066R-W4



Drill 1203R-MN



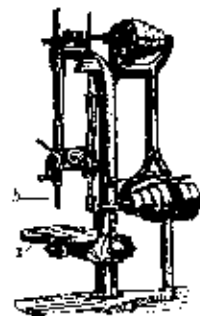
Drill Press
1251R-WN



Drill (Modern Drills) 5898R-ML
1 Flat; 2 Straight-flute; 3 Single-flute; 4 Two-groove; 5 Three-groove; 6 Four-groove; 7 Star; 8 Automatic; 9 Ratchet (Shows drilling a rail.)

D

D



Drill Press
1251R-MN



Drill Bit
1250R-WN



Camel (*C. bactrianus*)
782R-MN



Dumb Bells
372 D-4



Dromedary 8140-W4



Driver Ant 1294R-MN



Dromedary 1161R-MN
(*Camelus dromedarius*)



Drum
1484R-WN



1 Drum Mallet; 2 Drumsticks
9133-ML



Drupe
643-WN



Dumb-Bell
1072R-W4



Duplication 641R-MN



Durian
1073R-W4



Ducking Stool 1071R-W4



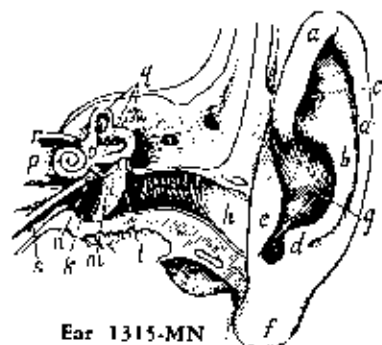
Duck Mole or Duckbill 1162R-MN
(*Ornithorhynchus anatinus*)



Dugong (*Halicore dugong*) 1220R-MN

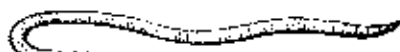
D

Ee

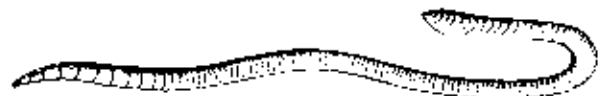
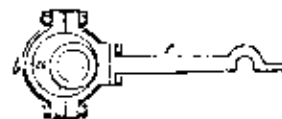
Eagle (*Aquila imperialis*) 1074R-W4

Ear 1315-MN

a to g Parts of the Pinna; a a Helix; b Antihelix; c Fossa of the Antihelix; d Antitragus; e Tragus; f Lobe; g Concha; h Auditory Canal; i Tympanic Membrane; k Tympanum; l Malleus; m Incus; n Stapes; o Vestibule; p Cochlea; q Three Semicircular Canals; r Auditory Nerve; s Eustachian Tube.

Earwig (*Spangobora bipunctata*) 1305R-MN

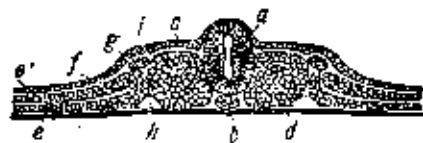
Earthworm 1304-M

Earthworm (*Lumbricus terrestris*) 3273-MNEared Owl
(*Asia otus*)
1340R-MNEar 1075R-W4
a helix; b antihelix;
c scaphoid (boat-like)
fossa; d tragus; e anti-
tragus; f concha; g lobeEared Owl
(*Asia otus*)
771-WNEchidna (*E. bystrix*)
1306R-MNEchinat
1077R-W4Eccentric 1355R-MN
a Eccentric; b Strap; c RodEdelweiss
1328R-MN

Echinoidea 1326R-M4

Eclipse 1078R-W4
S Sun; E Earth; M MoonEchinoidea 741-WN
(*Phyllacanthus dubia*)

E



Ectoderm 1363R-MN
 a Neurenteric Tube; b Notochord; c Epiblast; d Hypoblast; e Mesoblast; f Body Cavity; g Wolffian Duct; h Primitive Aorta; i Protovertebra



Edible Bird's Nest 1341R-WN
 Bird: (*Colloralia nidifica*)



Eggplant 5929R-M
 (*Solanum melongena*)



Egret 745-WN
 (*Ardea garzetta*)

E



Effuse 1079R-W4



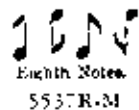
Edentata 1307R-MN
 (*Bradypus tridactylus*)



Eider (*Somateria* sp.) 1331R-MN



Elaphure 1346R-MN
 (*Elaphurus Davidianus*)

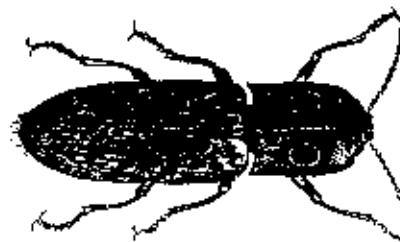


Eight Notes 5537R-M

Edentate 1343R-MN
 The Two-toed Ant-eater
 (*Cyclothurus didactylus*)



Egg & Anchor 838R-WN



Elatar (*E. ocellatus*) 1311R-MN



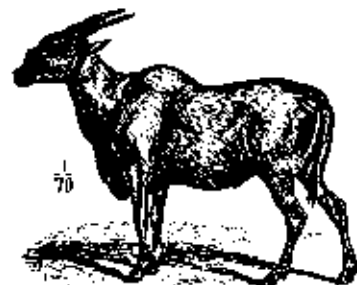
Eelpout (*Zoarces viviparus*) 1329R-MN



Edriophthalma 1308R-MN



Electrical Battery 13581-M4



Eland (*Taurotragus*) 1332R-MN

E



Electric Cat (*Malapterurus electricus*)
1312R-MN



Ellipsoidal Plane Sections
1468R-W



Encrinite 1324R-WN



Encystment 848-MN
n Nucleus; o Food Vacuole;
v Contractile Vacuole

E



Elk 6093-W
(*Cervus Canadensis*)



Elecampane 1080R-W4
(*Inula Helenium*)



Embattled
1886R-WN



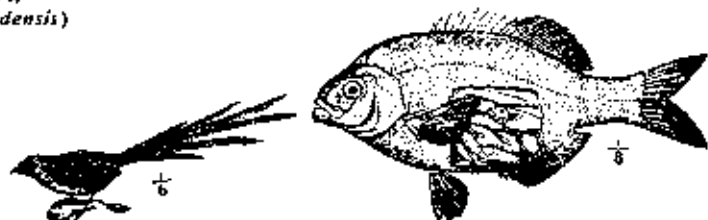
Epaulet
1089R-W4



Eozoon
750-WN



Ensign 4438R-MN



Emu Wren 1353R-MN
(*Stipiturus malachurus*)

Embiotocoid 1461R-MN



Entellus 1317R-WN



Elephant, p. 435,
Elephas Indicus



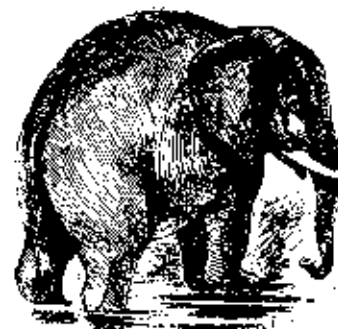
Emu 1334R-MN
(*Dromaius Novae-Hollandiae*)



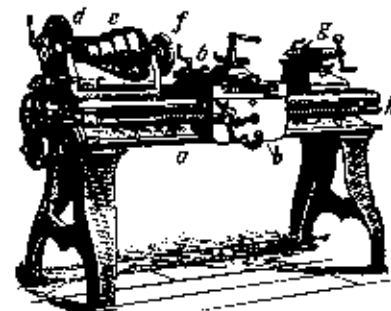
Embossed
1036R-WN



Elephant 14225-DI



Elephant, p. 435,
Elephas Africanus



Engine Lathe 2135R-WN
a Bed; b Carriage, with Cutting Tool;
c Headstock; d Back Gear; e Cone; f
Face Plate; g Tailstock; h Feed Screw

E



Engouled
1349R-W



Envelope
9657-M

The check's in the mail.



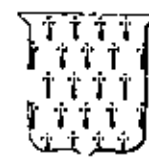
Erased
1095-WI



Escaloped
1097R-W

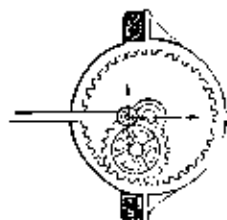


Equilateral
1093R-WI



Ermine
1431R-W

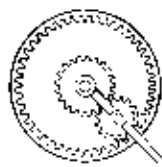
E



Epicycloidal Wheel
1090R-W4



Epicycloid 1467R-WN



Epicyclic train
1470-WN



Equitant
1094R-W4



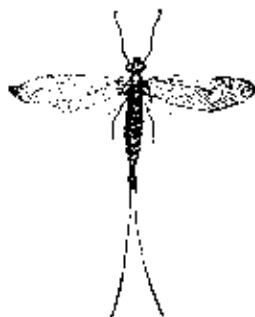
Erose
1096R-WI



Epiphyte
1336R-WN



Erd Shrew
(*Sorex vulgaris*)
1318R-MN



Ephemeral Fly 1338R-MN



Ermine 1319R-MN
(*Mustela erminea*)



Escapement
1099R-W4



Escapement
1101R-W4



Escapement
1100R-W4



Epiphyllous
1092R-W4



Epiphyllous
1091R-WI



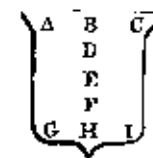
Escutcheon
3174R-WI



Escutcheon
3175R-WI



Escutcheon
3172-WI



Escutcheon
1350R-WI

E



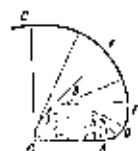
Eskimo Dog 1320R-MN



Ertheostomoid 1321R-MN
(*Boleosoma Olmstedii*)



Eulachon 1354R-MN



Evolve
1352R-MN



Extrados (b)
839R-WN



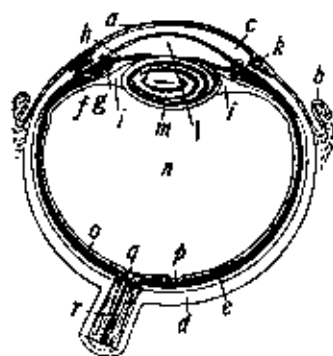
European Ringed Snake
3194R-W4



European Race
1376RR-M4



Extinguisher
1104R-W4



Eye 1658R-WN

nb Conjunctiva; c Cornea; d Sclerotic;
e Choroid; f Ciliary Muscle; h Iris;
i Suspensory Ligament; m Crystalline
Lens; n Vitreous Humor; o Retina;
p Yellow Spot; q Center of Blindspot
r Artery of Retina in the center of
the Optic Nerve.



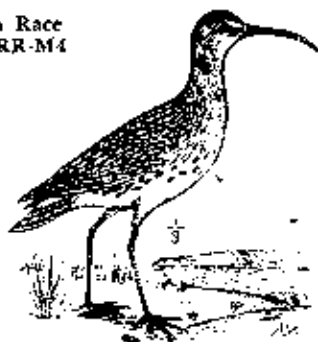
Exserted
1103R-W4



Eyes 14687-MN
e compound;
o simple



Evening Grosbeak
(*Coccothraustes vespertina*)
1358R-MN



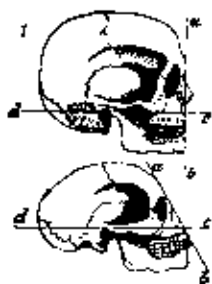
European Whimbrel 1345R-MN
(*Numenius phaeopus*)

F

Ff



Fallow Deer
13038R-MN



Facial Angles
1363R-M4
(Racist)



Fangs 820-WN
f Fangs; s Poison
Sac; d Its Duct;
m m' Muscles



Falcon
1494R-WN



Fan Training 3622R-W4



Fan-Palm 1368R-W4



Favose
1373R-W4



Fascicles
1454R-MN



Faucis
1430R-W4



Fasces
1367R-W4
(Fascist)



Fandango 1365R-W4



Fastigate
1429R-W4



Falcate
1264R-W4



Cruciate Flower
597R-W4



Fawn 1374R-W4



Fault
1448R-WN

F

F



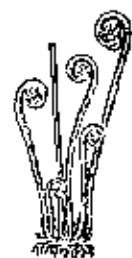
Feather 846-WN



Fennec 1475R-MN
(*Vulpes zerda*)



Feather 1460R-MN
a Shaft; b Aftershaft;
c c c Barbs; d Quill



Fiddleheads
13375-M



Fiddler Crab 1435R
(*Gelasimus minax*)



Fid
930-WN

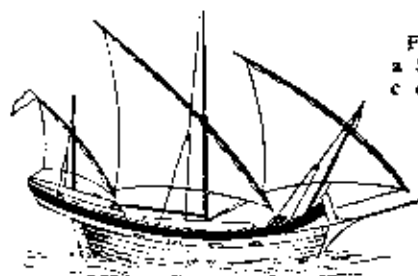


Fibrous
1378R-W4

F



Fex 1495R-WN



Felucca 1474R-M



Fess
1377R-WI



Figurehead
1381R-W4



Fandango 123-DI



Figure-head 451-DI



Ferret 1376R-W4
(*Mustela furo*)



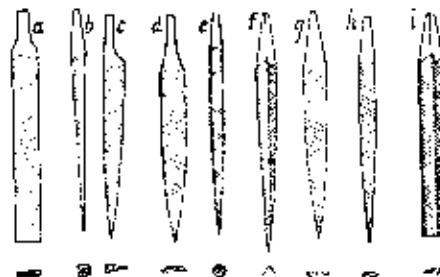
Fern
(Lady Fern)
1375R-M4



Feet of Coryphodon 396-WN
a Fore foot; b Hind foot



Fern
1375R-W4



Files 1485R-WN
a Flat; b Square; c Knife-edge; d Half-round; e Round or Rat-tail; f Three-square; g Enticing; h Cross; i Slitting



Filament
1382R-WN
a Filament;
b Anther



Fig 1380R-W4
(*Ficus Carica*)

F



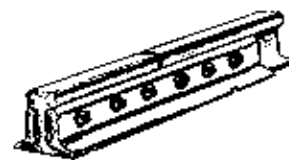
Finback (*Balaenoptera velifera*)
1455-MN



Firefly 807-MN



Fish Hawk 1452R-MN
(*Pandion haliaetus*)



Fish Joint 6010R-M

F



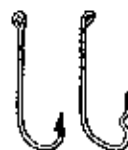
Finial 8142-W4



Fir 1476R-MN
(*Picea grandis*)



Firefly 8150-W1



Fish Hooks 9196-M



Angel Fish 154R-MN
(*Squatina angelus*)



Fish 1383R-W4

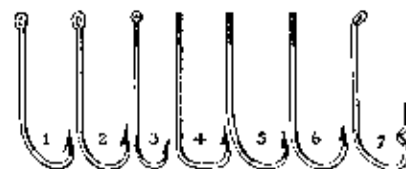
1 Ventral; 2 Anal; 3 Caudal;
4 Pectoral; 5 First Dorsal;
6 Second Dorsal



Fish 1383R-M



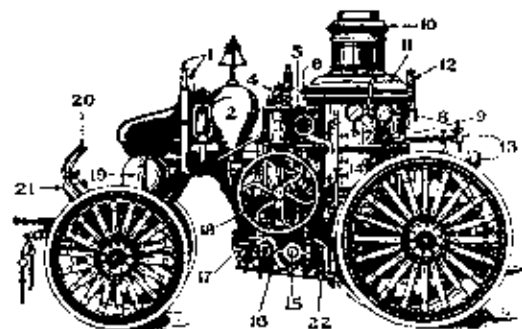
Fish Joint 1386R-W4



Fish Hooks 13540-ML
1 Limrick; 2 Kirby; 3 Carlisle;
4 Kendal Sneek; 5 Sproat;
6 Aberdeen; 7 Barbless



Angel Fish 74R-M (*Squatina angelus*)



Firetruck 6147R-ML



Fire Beetle 1487R-MN
(*Pyrophorus nectilucus*)



Archer Fish 4259R-MN

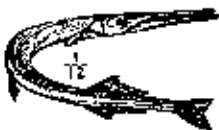
F



Archer Fish 2850-WN



Archer Fish 99R-M
(*Toxotes jaculator*)



Billfish 4273R-MN
(*Tylosurus longirostris*)



Bellows Fish 375R-MN
(*Centricus scolopax*)



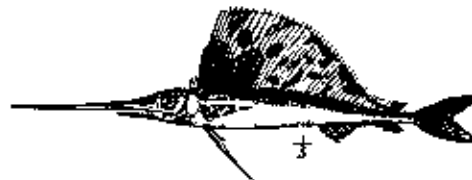
Banner Fish 2468R-MN (*Histiophorus pulchellus*)



Barbel Fish 230R-W4
(*Barbus vulgaris*)



Bananafish!? 2468R-M



Banner Fish 4272R-MN



Electric Fish 724-WN (*Torpedo*)
e Electric Organ of left side;
l Electric Lobe of Brain



Bellows Fish 498-WN



One Fish 1883R-WN



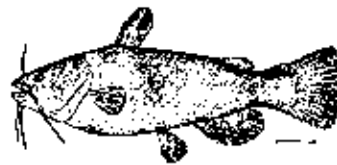
Dollar Fish 774-WN
(*Stromateus triacanthus*)



Banner Fish 2864-WN (*Histiophorus pulchellus*)



Blindfish 337R-MN
(*Amblyopsis spelaus*)



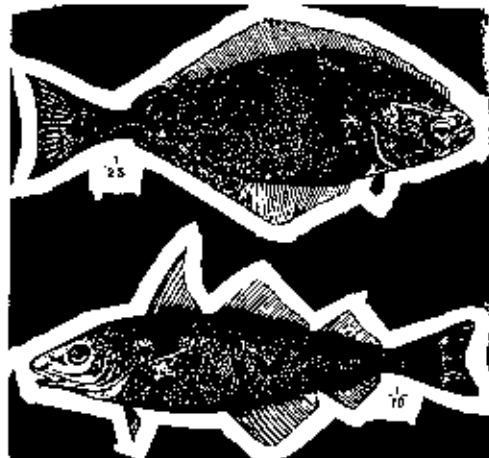
Catfish 199-MN
(*Amiurus catus*)



Blackfish 458-MN
(*Globicephalus melas*)

F

F



Two Fish 990-WN & 994-WN



Paradise Fish 1484R-WN



Flying Gurnard 835-WN
(*Cephalacanthus volitans*)



Flying Fish 813-MN



Flat Fish 920-WN



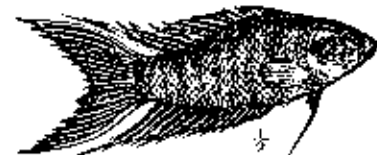
Frostfish 929-WN
(*Microgadus tomcod*)



Fallfish 801-WN (*Semotilus bullaris*)

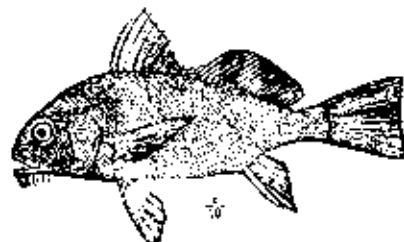


Flying Fish (*Exocoetus robustus*)
1440R-M



Paradise Fish 2450R-MN

F



Drumfish 1163R-MN (*Pogonias chromis*)



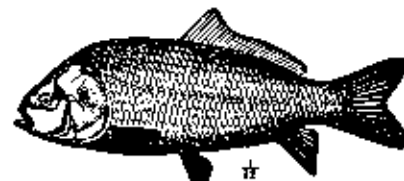
Filefish 1436R-MN (*Alutera schoepfi*)



Frostfish 1493R-MN
Neither out far nor in deep. . . Frost



Coral Fish 4381R-MN
(*Apogon frenatus*)



Buffalo Fish 857R-MN
(*Ictiobus bubalus*)



Red Fish 2949R-MN
(*Sebastes marinus*)

BLUE FISH

REAL FISH



Bluefish 334R-MN (*Pomatomus saltatrix*)



Flounder Fish 1029R-W



Swisher Fish 1385RR-W
(*Silvius shimmeanus*)



Plaice 8042-W



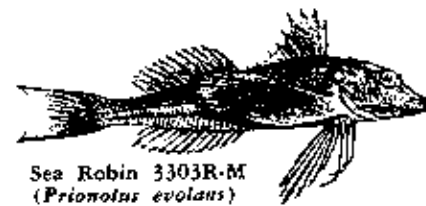
Cowfish 849R-MN
(*Ostracion camelinus*)



Dogfish 2930-M (*Squalus acanthias*)



Catfish 2955-WN
(*Amiurus nebulosus*)



Sea Robin 3303R-M
(*Prionotus evolans*)



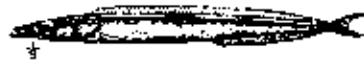
Garfish (*Tylosurus marinus*) 1559R-MN



Halfbeak 1798R-WN



Houndfish (*Galeus canis*) 1948R-MN



Lance Fish 2046R-MN
(*Ammodytes tobianus*)



Pike (*Esox lucius*) 2468R-MN



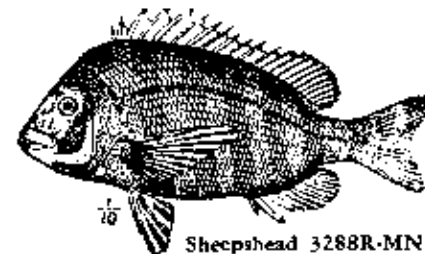
Topknot 3831R-W4
(*Rhombus punctatus*)



Goldfish 3050R-W
(*Crenilabrus melops*)



Grunt Fish 1795R-WN
(*Haemulon sciurus*)



Sheepshead 3288R-MN
(*Archosargus probatocephalus*)



Fishy Fish 8042-W



Windowpane 1300R-W

SMALL FISH

SMART FISH

F

F



Sterlet 17R-W4



Two-spined Stickleback
3441R-MN



Goldfinch 1526P
(*Crenilabrus me*)



ad 1513R-W4
(*abrus melops*)



Rudd 3050R-WN



Rudd 2927R-W4
(*Leuciscus erythrophthalmus*)



Bellyfish 24R-W4



Perch 16R-W4



Chogset 684R-MN



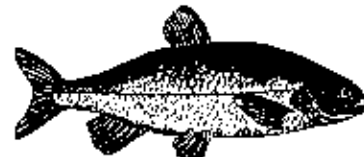
Herring 1849R-W



Darter 1321R-MN



Carp 630R-W4
(*Cyprinus carpio*)



Chub 629R-W4
(*Semotilus corporalis*)



Stickleback
3442R-MN



Roach 3048R-WN
(*Leuciscus rutilus*)



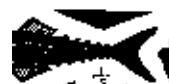
Anchovy 817R-MN



Microfish
1386RR-W



Skipjack (*Scamberesox saurus*) 3267E



WN



Bullhead 2254R-M



Sculpin 3152R-W4
(*Callionymus draconculus*)



Bait Stealer 684-WN
(*Ctenolabrus adspersus*)



Anna B's Fish 175R-W4



Hake Fish (*Phycis ce*)



g) (*Phycis chuss*) 993-WN



Halibut 8102-W



Whiskerfish 230-WN



Weakfish 3402R-MN



Gudgeon 1546R-W4
(*Gobio fluviatilis*)



Brook Trout 3975R-WN
(*Salvelinus fontinalis*)

F



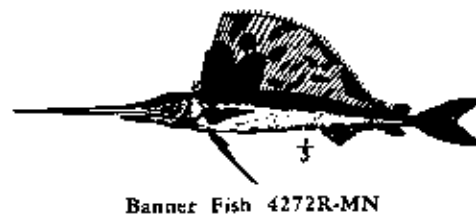
Banner Fish 302-WN



Banner Fish
(*Histioborus*)



302R-M
pulchellus



Banner Fish 4272R-MN

F



Spearfish (*Tetrapturus albidus*) 3367-MN



Sailfish 1937-WN



Spikefish 3088R-MN
(*Histioborus americanus*)



Spearfish 3367-MN
(*Tetrapturus albidus*)



Swordfish 15111-M



Swordfish 3504-MN



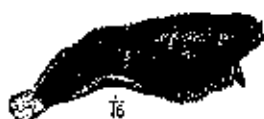
Swordfish 3504-MN



Swordfish (*Xiphus gladius*) 2235-WN



Spearfish 2103-WN



Sole 3545R-MN
(*Solea vulgaris*)



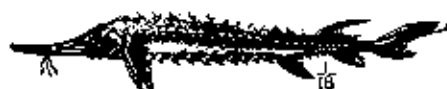
Chondrostei



Chondrostei (*Psephurus gladius*) 2929-W



Chondrostei 1002R-M



Sturgeon 3439R-MN



Sturgeon (*Acipenser sturio*)



Sturgeon (*Acipenser sturio*) 3452R-WN

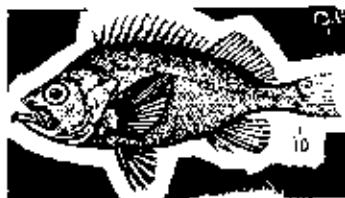


Sturgeon (*Acipenser rubenus*) 2147-WN

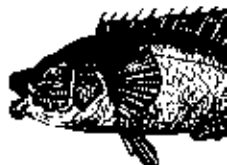
BOX OF FISH



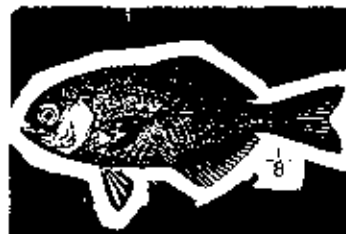
Spot Fish 2123-WN



Rockfish 1812-WN



Gilthead 15131
(*Crenilabrus m*)



Rudderfish 1814-WN



Silverfish 2336-WN



Wrassercfish 2778-WN



Lizard Fish 1997-WN



Sardine 1849-MN



Miller's Thumb 1386-WN



Hake (Whiting) (*Pby*)



Weever Fish 2740-WN



Graining 978-WN

SCHOOL OF FISH



7 1526R-W4
(*brus melops*)



Schoolmaster 14781-MN



Goodyfish 3386R-MN



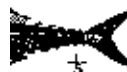
o)



Tinker Fish 8483R-MN
(*Menidia notata*)



Redfin 8027R-MN



) 3267R-M



Scad Fish 3108-MN
(*Trachurus saurus*)



Rainbow Trout 1791R-WN



Pbycis chuss) 1588R-MN



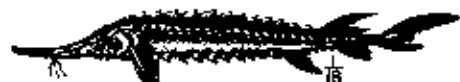
Mullet Fish 2203R-MN



Flunkfish 14934-M



Haddock Fish 1685R-MN



Starlet 15098-MN



Scopeloid Fish 3512R-MN



Pilot Fish 2470R-MN
(*Naucrates ductor*)



Scabbardfish 3107R-MN
(*Lepidopus caudatus*)

F



Butterfly Fish 3401R-M



Stargazer 3433R-MN



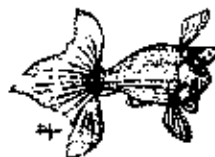
Angel Fish M



Telescope Fish
2341-WN



Scorpion Fish
312R-MN



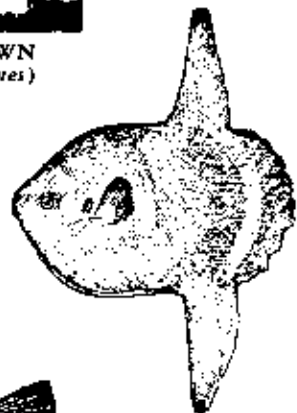
Telescope Fish
3711R-MN



Moonfish 1363-WN
(*Vomer setipennis*)



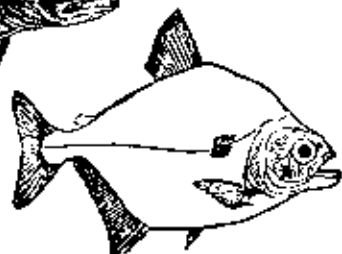
Sucker Fish!
(*Catostomus teres*) 3493R-MN



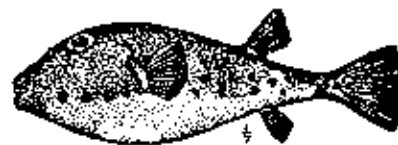
Sunfish
(*Mola mola*)
3498R-MN



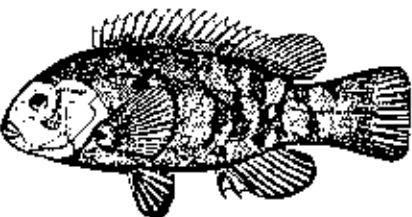
Drizzle Fish 1234-WN



Caribe 302-M
(*Serrasalma scapularis*)



Puffer Fish 4814R-M
(*Tetrodon turgidus*)



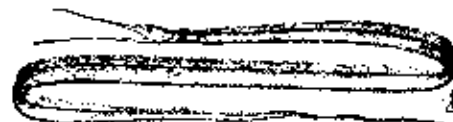
Oyster Fish 3708R-MN



Bass Phish 308R-MN
(*Roccus lineatus*)



U-Fish
148-MN



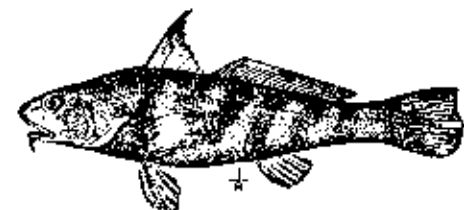
Snipefish (*Nemichthys scolopaceus*) 3351

F

JAWFISH



Jawfish (*Promicrops itaiara*) 1926R-MN



Kingfish (*Menticivrus saxatilis*) 2029R-MN



Frogfish 1625R-MN
(*Pterophrynooides histrio*)



Sheatfish (*Silurus glanis*) 2019-MN



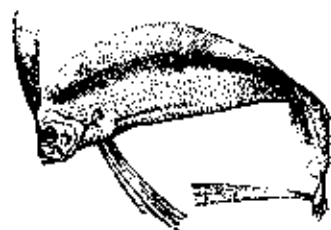
Sacred Fish 3083R-MN
(*Mormyrus oxyrinchus*)



Rudd Fish 2927R-W
(*Leuciscus erythrophthalmus*)



Toadfish (*Batrachus tau*) 3897R-MN



Ribbon Fish 3010R-MN
(*Trachipterus taenia*)

WHITEFISH



Sailfish 1937-WN
(*Histiophorus Americanus*)



Snakefish 2082-MN
(*Synodus myops*)



Sawfish (*Pristis pectinatus*) 952-MN



Swordfish (*Xiphias gladius*) 3504R-MN



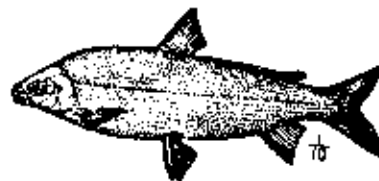
Rudder Fish 2950R-MN
(*Leirus parcifformis*)



Spearfish (*Tetrapturus albidus*) 3367-MN



Paddlefish (*Polyodon spathula*)
2448R-MN

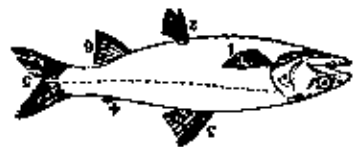


Whitefish 4017R-MN
(*Coregonus clupeiformis*)

DEAD FISH

FLAG

F



Dead Fish 6046R-M
(*Fishus mortuus*)



Trunkfish 3916R-MN
(*Ostracion triquetrum*)



Flag of the United States
of America 1387R-W



Flag 8028-W
(American Jack)



Flag of the United States
of America 4451-W

F



Lumpfish 2101R-MN
(*Cyclopterus lumpus*)



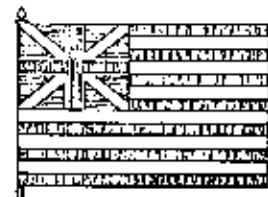
Triggerfish 2379-WN
(*Balistes capriscus*)



Flag 1137-WN
(British Jack)



Flag 3056-W
(Union Jack)



Grand Union Flag 1775-1777
13739-ML



Wolf Fish (*Anarrhichas lupus*) 4021-MN



Surgeon Fish 3812R-MN
(*Acanthurus Xanthopterus*)



1



2

Flags 6613R-ML 1 Stars & Bars,
First Flag of the Confederacy 1861-1863
2 Confederate Navy Jack
(Rebel Battle Flag)



Triggerfish 3736R-MN
(*Balistes capriscus*)



Fix
Bayonet
890R-MN



The Fates 1380RR-M4



Flag of the United States
(Old Glory) 4451-W



Flag 4248R-W (Old Glory)

F



Flagellata 1491R-MN
1 *Polytoma uvella*;
2 *Microglens monadina*



Flask 1391R-W4



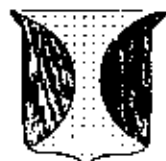
Flabellinerved
1453R-MN



Flageolet 1611R-WN



Flageolet 1888R-W4



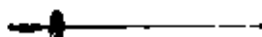
Flanches
1389R-W4



Flax 1392R-W4
(*Linum usitatissimum*)



Flamingo 1496R-MN
(*Phoenicopterus antiquorum*)



Foil 1899R-W4

Death never won a stake with greater foil,
Nor e'er was late so near a foil. - Dryden



Flea (*Pulex canis*) 1471R-MN



Flea-Beetle
(*Haltica striolata*)
1438R-MN



Flea-Beetle
B Larva; C Pupa
1449-MN



Fleur-de-lis
1497R-W4



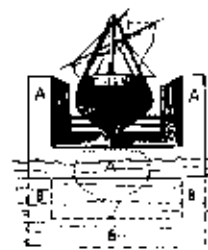
Florets
1393R-W4



Floatant
1394R-WI



Flicker
(*Colaptes auratus*) 143R-MN



Floating Dock 1272-WN
A Tanks filled with air
B Tanks filled with water

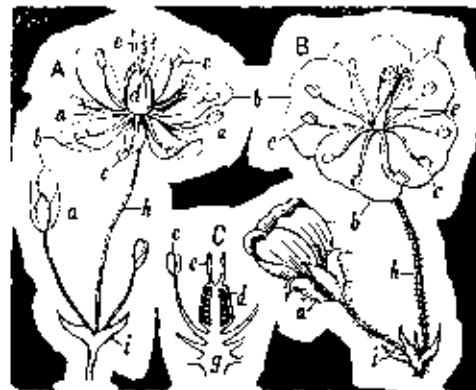


Flute 1010R-WN



Flower-de-luce
(*Iris*) 1395R-W4

F



Flower 966-WN
A Sandwort (*Arenaria squarrosa*);
B Geranium; C Section of receptacle and
pistil of sandwort. aa Sepals, collectively
constituting the Calyx; bb Petals, collec-
tively forming the Corolla; cc Stamens,
consisting of Anthers and Filaments; d
Ovary, e Styles, f Stigma, together consti-
tuting the Pistil; g Receptacle; h Pedicel;
i Bracts.

F



Fly 6301R-ML



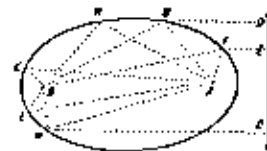
Flying Fish 8119-W



Fly 6085-ML
1 eye; 2 head; 3 wing;
4 body; 5 butt; 6 tail;
7 rag; 8 hackle



Foliations 1401R-W4



AB Foci of an Ellipse
1481R-MN

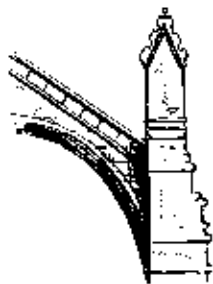
F



Flying Squirrel
1441R-MN



Flying Squirrel 13040R-ML
(*Sciuropterus volucella*)



Flying Buttress
1398R-W4



Flytrap 839-MN
(*Dionaea muscipula*)



Fountain 1407R-W4



Follicle
1402R-W4



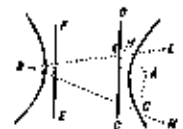
Fold 6312R-M



Flycatcher
(*Muscicapa
grisola*)
1804R-WN



Flying Frog 1465R-MN
(*Rhacophorus Reinhardtii*)



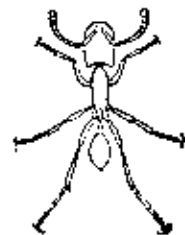
AB Foci of Hyperbola
1483R-MN



Foraminifera 1478R-MN
A *Textularia Mariae*; B *Cassidulina
crassa*; C *Anomalina variolata*; D
Triloculina; E *Robulina Ariminensis*;
F *Globigerina bulloides*



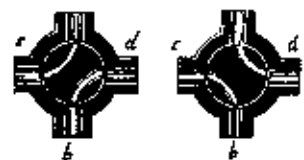
Footstalk
1403R-W4



Foraging Ant
(*Eciton sumichrasti*)
1442-MN



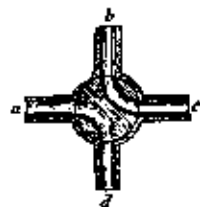
Flying Frog 847-WN



F Four-way Cock 1635R-WN



Fourche
1408R-W4



Four-way Cock
1555R-W4



Fox (*Vulpes lagopus*)
1443-MN



Fox (*Vulpes vulgaris*) 1444B-MN



Fox Terriers
1464R-MN
a Smooth-haired
b Rough-haired



Foxglove 1409R1W4
(*Digitalis purpurea*)



Foxhound 1463R-MN



Francolin 1458R-MN
(*Fraucolinus crementus*)



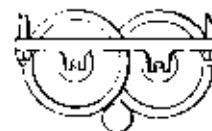
Fretted
1410R-W4



Fieldfare 1624R-MN
(*Turdus pilaris*)



French Horn 1636R-MN



Friction Wheels
1415R-W4



French Horn
13110-M



Frictional Gearing
1414R-W4



French Horn
1412R-W4



Friction Clutch
1418R-W4
c Spring plate;
d Collar; s Shaft



French Horn
1811-M



Friction Cones 1417-W4



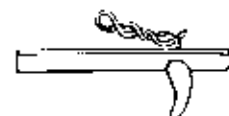
French Horn 960-WN



Fretted
1413R-W4



Frigate (1800-1840) 1419R-M4



Friction Tube
1416R-W4

F



Frond 1422R-W4



Frigate Bird 1492R-MN



Fruit Bat 1829R-M
(*Cynonycteris collaris*)



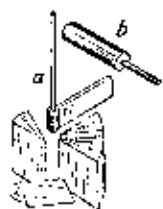
Frog 148R-W
(*Rana pipiens*)



Feilled Lizard 1682R-WN
(*Chlamydosaurus kingii*)



Frog (Bull-frog) 2148R-M



Frog 6127R-M



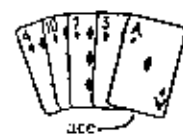
Frustums 1423R-W4



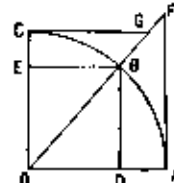
SECTION B.B. SECTION A.A.
Frog 6164R-ML



Fulcrum of the tail of a Gar Pike 1649R-WN



Flush 34-4-M
(Ace High)

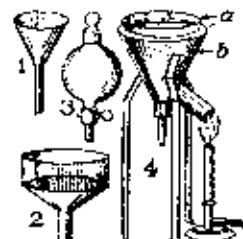


Functions 1197R-MN

F



Furnace 604R-W4
(Cupola Furnace)



Funnels 6009R-M
1 Common Glass; 2 Buchner;
3 Separatory; 4 Hot Water;
a Glass Funnel, b Copper
Water Jacket.



Fungi 1613R-W4
1 *Agaricus comatus*;
2 *Boletus edulis*;
3 *Morchella esculenta*



Funnelform 1424R-W4



Fungia 961-M
(*F. elegans*)



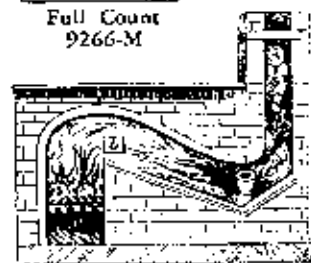
Fusiform 1427R-W4



Fur Seals (*Callorhinus ursinus*) 1445R-M
a Adult Male; b Adult Female



Full Count 9266-M



Furnace 1425R-W4
(Reverberatory Air Furnace)
a Ash-pit; b Door; c Hearth;
d Chimney; e Retort

F



Furze 1450R-MN
(*Ulex Europaeus*)



Furies
1383RR-M4



Furze 829-WN
(Gorse, Whin)



Futtock Shrouds
831-WN



Fusil
1428R-W1



Futtock Shrouds
1452R-MN



Fusee & Barrel 1426R-W
F Fusee; B Barrel

Gg

G



Gable 1499R-W4



Galeate
1502R-W4



Gabion 1493R-W



Gadfly (*Hypoderma bovis*)
830-MN



Gadwall (*Anas strepera*)
1500R-W4



Galago 1629R-MN
(*G. Montezii*)



Gaiter 1501R-W4



Galls & Gallfly
956-W/N
A Adult Fly
B Two Galls;
C section of Gall



Gallows 8009-W



Ganoid Scales 1642R-MN



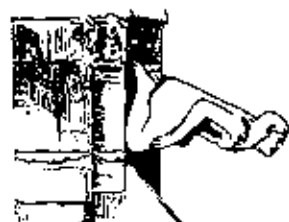
Ganoidci 1659R-MN
(*Calamoichthys Calabaricus*)



Gargoyle 8144-W



Gapeworm 1634R-MN



Gargoyle 822R-MN



Gamopetalous
1504R-W



Gambrel Roof
963R-MN



Guardant
3223R-WI



Garganey (*Anas querquedula*)
1506R-W4



Gar Pike (*Lepidosteus osseus*) 1653R-MN



Gamma Grass
4307R-MN



Garter Stitch
6171R-M



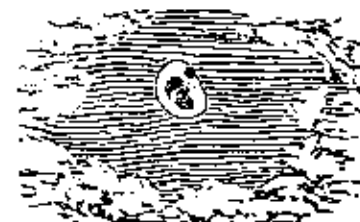
Gauntlet 1641R-W4



Gelsemium 1868R-MN
(Yellow Jasmine)



Gavel (*Gauletic crocodile*) 1631R-MN



Gibbous Moon 1384-W



Gazelle 1560R-MN
(*Gazella dorcas*)



Gemini 1384RR-M4



Gemel
1511R-WI

G



Gembok 1551R-MN
(*Oryx capensis*)



Geese 183R-W4
(*Anser*)



Gentian 911-WN
(*Gentiana verna*)



Geophila 1603R-MN
(*Acanthinula barpa*)



Gemmac
1590R-MN



Ganesa 4978R-M



Genet 1668R-MN
(*Genetta vulgaris*)



Geometrical
Spiral 1380R



Geometrid (Larva)
(*Zerone calenaria*)
1563R-MN



Geophila 1607R-MN
(*Pallifera dorsalis*)



General 4412R-W



Geranium 1587R-WN
(*Geranium maculatum*)



Glacier 1667R-MN
The Viesch Glacier with Medial Moraine



Girdler &
Girdled Twig
1818R-MN



Gibbon (Wou-wou)
(*Hylobates agilis*)
1628R-MN

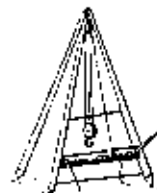
G



Gig 1512R-W4



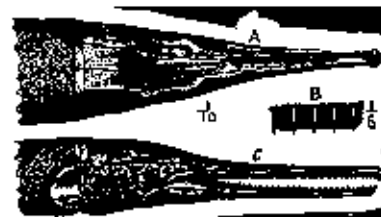
Gila Monster
(*Heloderma suspectum*)
1660R-MN



Gin 1514-W4



Giraffe 934-WN
(*Camelopardalis giraffa*)



Ginglymodi (*Lepidosteus tristoechus*)
1791R-WN A Dorsal view; B Teeth
(enlarged); C Lateral view

G



Gladiolus 1515R-W4



Glass Cutter 6227R-ML



Glomerate 1518R-W4



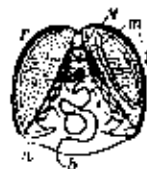
Glaucus 1038-WN
(*G. margaritaceus*)



Gnat 1736R-MN
(*Culex ciliata*)
A Male; B Mouthparts
l Labium; p p Maxillary Palpi;
a a Antennae



Giraffe 14315-MN
(*Camelopardalis giraffa*)



Glochidium of
Anodonta 1677R-MN
s Setae; b Byssus
v Velum



Gloxinia 940-WN



Gnu (*Caproblephas gnu*) 1562-MN



Glockenspiel 13916-ML



Goat 8133-W



Gluepot
(Sectional view)
1520R-W4



Gnu 8138-W

G



Globe 1517R-W4



Glyptodon 1522R-W9
(*Glyptodon clavipes*)



Gocart 1524R-W4

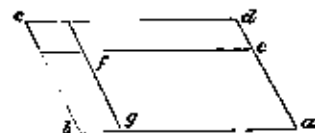


Glume 1521R-W9



Glowworm 1519R-W4
(*Lampyrus noctiluca*)
a Female; b Male

Like a glowworm in the night,
The which bath fire in darkness,
none in light. -Shakespeare



Gnomons 6209R-W4



Godwit 1525R-W4
(*Limosa lapponica*)

G



Goldfinch 936-MN
(*Carduelis elegans*)



Golf Ball
9223-ML



Golden Eagle 1564R-MN
(*Aquila chrysaetos*)



Goldsmith
Beetle
Larva
872-MN



Goldfinch 883-WN
(*Spirus tristis*)



Goby 866-WN
(*Periophthalmus schlosseri*)



Glutton (Wolverine) 1577R-WN



Goldsmith Beetle 1566R-MN
(*Cotalpa lanigera*)



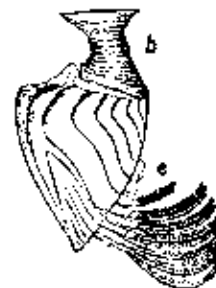
Golf Clubs 6286R-ML
1 Driver 2 Spoon 3 Driving Iron
4 Midiron 5 Mashie 6 Niblick 7 Putter



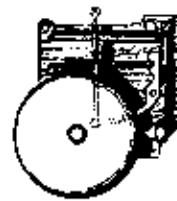
Gonfalon
1527R-W9



Gooseberry
Worm
1666R-MN



Goose Barnacle
(*Lepas fascicularis*)
b Stalk c Cirri
627R-M



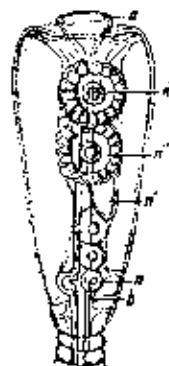
Gong
1789R-W4



Gondola 941-WN



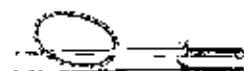
Gondola 6283R-M



Gonotheca of Obelia
1662R-MN
n n' n'' n''' Gonophores
in stages of development



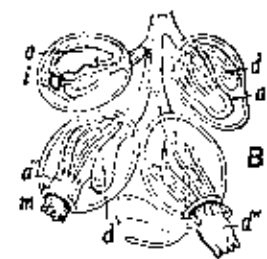
Gopher 1792R-MN
(*Spermophilus*)



Grace Hoop & Sticks
1530R-W4



Gore
1916R-W4



Gonsome of *Tubularia indivisa*
1733R-MN
a a' a'' a''' Accinulae in four
stages of development

G

GRAFT

GREED



G
Gorgonia 1663R-MN
(*G. flabellum*)
a Axis c Coenenchyrea



Gorget
1529R-W4



Gorch's Toe Hold 6386R-ML



Grain Weevil 1571R-MN
(*Sitophilus granarius*)



Grape Curculio
886-WN
b Larva
c Injured grape



Grape curculio
1644R-MN
(*Craodontus inaequalis*)



Gourds 1614R-MN



Gown
3243R-W



Gorilla 1569R-MN
(*Tragodytes gorilla*)



Gorilla 581-D1



Governor
986-WN



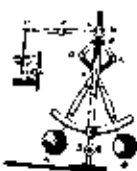
Grape (*Vitis*) 1538R-W4



Clef
Graft
1531R-W4



Splice
Graft
1535R-W4



Governor
8405-W



Whip
Graft
1532R-W4



Saddle
Graft
1533-W4



Grape Hopper 1573R-MN
(*Erythronera vitis*)



Side
Graft
1534-W4



Grapeshot
1810-M4



Grains
1729R-WN



Grapple 8110R-W



Grapple 1539R-W4



Grampus 1672R-MN



Grasshopper 1621R-MN
(*Caloptenus femur-rubrum*)



Grampus (*G. griseus*) 975-WN

G



Grass Finch 888-MN
(*Pooecetes gramineus*)



Grain Moth
(*Tinea granella*)
1657R-MN



Grained Sepals
1536R-W4



Grasshopper 1544R-W4
(*Locusta viridissimus*)



Greenlet 1578R-MN
(*Vireo noveboracensis*)

G



Grapsoid 1745R-W4
(*Grapsus pictus*)



Grallatory 1537R-W9
b b Head and Foot of Crane
c c Head and Foot of Stork



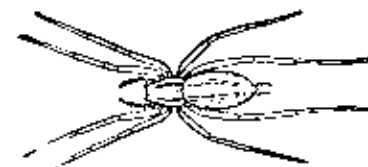
Grama Grass
(*Bouteloua oligostachya*)
4308R-MN



Grecian Sphinx
3206-W4



Great Bunch Grass
(*Colymbus holboellii*)
4309R-MN



Grass Spider 1622R-MN
(*Agelena naevia*)



Grasshopper
Gauge
6266R-MN



Grecian Sphinx
8040-M



Grasshopper 1621R-MN
(*Caloptenus spretus*)

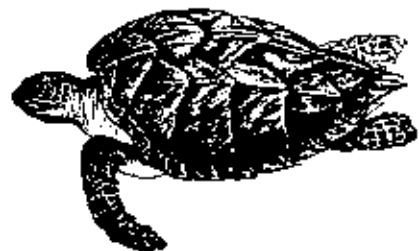
GREEN



Grosbeak 1742R-MN
(*Habia ludoviciana*)



Grebe 1740R-MN



Green Turtle 3002-MN



Grenadier 1579R-MN
(*Macrurus rupertis*)



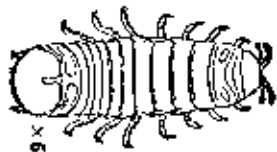
Grizzly Bear 901-WN
(*Ursus horribilis*)



Gudgeon 1547R-W9
a Wooden Shaft with
Socket in end; b Gudgeon



Gudgeon 1546R-W4
(*Gobio fluviatilis*)



Gribble 1623R-MN
(*Limnoria lignorum*)

GROUND



Greyhound 1544R-W4



Grivet 1581R-MN



Greyhound 8091R-W



Grizzly Bear
1741R-MN



Groined Arch 1543R-W4



Guard
("En garde!")
5660R-ML



Grouper 14914-MN
(*Epinephelus morio*)



Ground Beetle 1582R-MN
(*Harpalus caliginosus*)

GULLIBLE



Gules
1550R-W1



Gull (Herring Gull) 1793R-WN
(*Larus argentatus*)



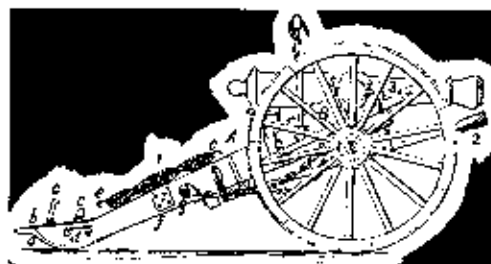
Guacharo 1630R-MN
(*Steatornis caripensis*)



Gutta-percha
(*Isanandra gutta*)
1552R-W4



Guenard (*Trigla hirundo*) 1671R-MN



Gun Carriage 1152-WN
A Stock; B Check; a Lunette; b Trail Plate
cc Pointing Rings; d Handle; ee Prolonge
Hooks; f Wheel Guard Plate; g Lock chain
i Elevating Screw; 1 Prolonge; 2 Sponge
And Rammer; 3 Handspike



Guinea Grass
(*Panicum jumentum*)
4810R-MN

GUITAR



Griffin
1542R-W4



Gryllus 1693R-W4



Gryphaea 904-WN
(*G. incurva*)



Guitar 1549R-W4



Guillotine
8125R-W



Guitar
8001R-W



Guidonian Hand
6271R-ML



Guitar 525 W1



Guib 1594R-MN
(*Tragelaphus scriptus*)



Guinea Fowl 1584R-MN
(*Numida puucherani*)



Guinea Pig 6276R-M
(*Cavia cobaya*)

G



Gyrfalcon 1490R-W4



Gymnospermous
Carpophyll
1591R-M



Gymnosomata
(*Clione
papilionacea*)
1099-WN



Gyrfalcon
(*F. rusticolus*)
1586R-MN



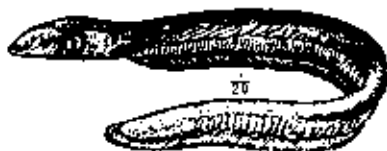
Gynandrous
1553R-W4



Gymnoblaster
(Liberated
Gonozoid)
1043-WN



Gyroscope
6299R-ML

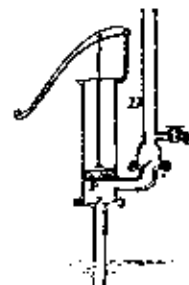


Gymnotus 1595R-MN (*G. electricus*)
One fearful shock, fearful but momentary,
like that from the electric blow of
the gymnolus. - De Quincey.

Hh



Haje (*Naja haje*) 4332R-MN



Hand Pump
1404R-W



Halberd
1746R-W4



Haematozoon 1060-WN
a Male; s Sucker; b Female
d Gynaecophore; c Female's Head



Hadley's Quadrant
2871R-W4
h Horizon-glass;
i Index-glass;
s Sigit



Hammerhead (*Sphyrna tudes*) 1856R-M



Hammock 1809R-WN

H

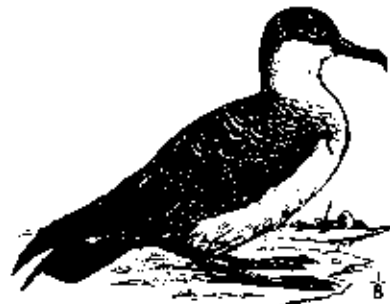
H



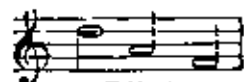
Half-timbered 823-M



Halberd 5515R-W



Hagdon (*Puffinus major*) 1812R-MN



Half notes. 5544R-M



Hurdy-Gurdy 567-DI



Haematozoon 1811R-MN
(*Bilharzia haematobia*)



Hamster 1805R-WN
(*Cricetus frumentarius*)



Hammerlock 6385-ML



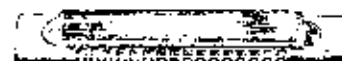
Hammock 6298R-ML



Hammerhead Shark 1076-WN
(*Sphyrna tudes*)



Hatteria (*Hatteria punctata*) 1813R-MN



Harmonica 5930R-M



Hatchment 1752R-WN



Harvest Mite 1814R-MN



Hawkmoth 1815R-MN
(*Macrosila carolina*)



Harpoon 1691R-MN



Hauberk 1758R-W4



Hawk Owl 999-MN
(*Surnia ulula*)



Hawk 8123-W



Haunches of Arch 1754R-W4

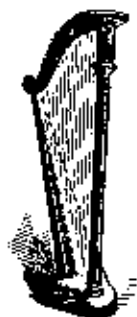


Hawkfinch 1693R-MN

H



American Mountain Hare
931R-M (*Lepus americanus*)



Harp
1748R-W4



Hare 1477R-M4
(*Lepus timidus*)



Headlight
1755R-W4



Headpiece



Headlock
14072-ML



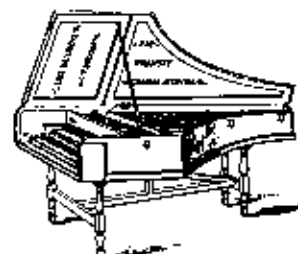
Harp Shell
1857R-MN
(*Harpa articularis*)



Harpy 1749R-W4
(*Harpyia destructor*)



Harlequin Duck 1797-WN
(*Histrionicus histrionicus*)



Harpsichord 5985R-ML



Hart (Antlers of)
1750R-W4
1 At birth; 2-6
One-five yrs. of age.



Heart
1757R-W4



Heartshaped
2406R-W



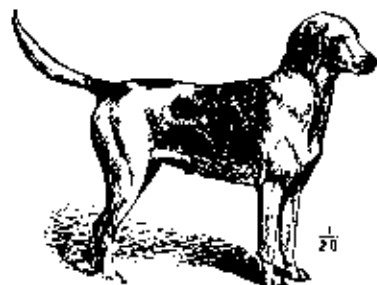
Hedgehog 1696-M
(*Erinaceus europaeus*)



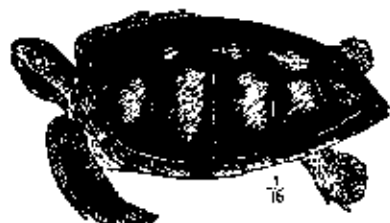
Helix 1888R-MN
(*Helix alternata*)



Hedge Sparrow
1684R-MN



Harrier 1692R-MN



Hawkbill 3954-MN
(*Eretmochelys imbricata*)



Heather
1853R-WN



Heath Grouse
1694R-MN (*Tetrao tetrix*)

And heather,

Gorse and grass

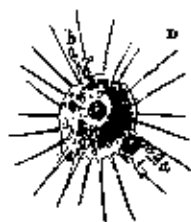
- Longfellow



Heather 1853R-MN
(*Calluna vulgaris*)



Hieroglyphics
from an Egyptian
Obelisk
1765-W4



Heliozoa
1727R-MN
(*Actinophrys sol*)



Hermaphrodite Brig
4356R-MN



Hermaphrodite Brig
4356R-WN



Hermes
1761R-W4



Herringbone Masonry
1763R-W4

H

H



Hellgramite
(Male adult fly)
1817R-MN



Hellbender 1697R-MN
(*Protonopsis horrida*)



Herd's Grass
4311R-MN



Heron 1762R-W4
(*Ardea cinerea*)



Heron 8027-W



Hemiptera
1823R-MN
(*Arma spruosa*)
(True Bug)



Helmert Beetle
1067-WN
(*Chelymorpha argus*)



Helmet
1760R-W1



Yellow White Red Blue Green Purple Black Orange Minnie Ermine
OR. ARGENT. GLAZ. AZURE. VERT. PURPURE. SABLE. FLINNE. SANDRINE. FLO.
Heraldry 4392R-W4
Colors & tinctures described by lines, dots, etc.



Helmet
1760R-M4



Hermit Crab 1698R-MN
(*Eupagurus bernhardus*)
In shell of *Lunatia heros*



Hemp
(*Cannabis sativa*)
1087-WN



Hesperornis 1700R-MN
Science is Measurement



Hessian Fly 1701R-MN
(*Cecidomyia destructor*)
a Adult fly; b Larva
c Pupa; d Stalk of
wheat; e Larvae



Heterocercal Tail
1702R-MN



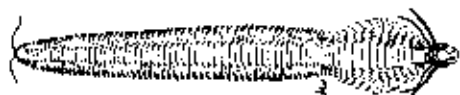
Heterotricha
1081-W
(*Stentor poly-
morphus*)
(Group of five)



Heteropoda 1862-WN
A Carinaria; p Proboscis; t Tentacles
e Eyes; x Esophagus; g Gills; c Shell
l Liver; f Foot; s Sucker of Foot



Hexapoda
1261R-MN
A Coxa;
B Trochanter;
C Femur
D Tibia
E Tarsus
F Tibial Spur



Heteronereis of *Nereis megalops* 1895-MN



Hobby 1185-MN
(*Falco subbuteo*)



Hippopotamus 1802R-W4
(*Hippopotamus amphibius*)



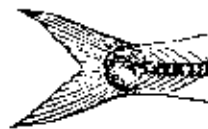
Hip Roof
965RF-M



Hippopotamuses 1855R-MN



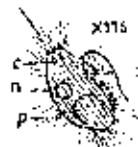
Hitches 1870R-MN
b Half Hitch;
c Timber Hitch



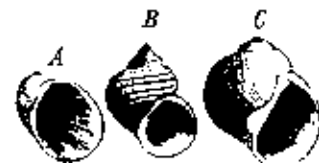
Homocercal Tail
1710R-MN



Holothurioides 1068-WN
(*Tbyone briareus*) A Nat. position
in expansion; B Posterior end



Holotricha
1703R-MN
m Mouth; n Nucleus
c&p vacuoles



Holostomata 1872R-MN
(A *Velutina zonata*; B *Littorina
eudis*; C *Natica clausa*)



Holostraca 1708R-MN
(*Estheria californica*)



Hexoctahedron
1794R-MN



Hippos 1855RA-MN



Hippopotami 1855B-MN



Heterotricha
1861R-MN



Holly 1871R-MN
(*Ilex aquifolium*)

HONEY



Honey Ant
1858R-MN



Honey Bee 1859RA-MN
B Queen; C Worker



Honey Bee
1859R2-M



Honey Bee
1859R-MN
A Male or Drone



Hood Moldings
1769R-W4



Honeycomb 1275-WN



Honey-comb 1767R-W4



Horn
1771-W4



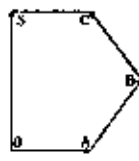
Hoopoe 1786R-W4
(*Upupa epops*)



Hook 3756R-M



Hop 1770R-W4
(*Humulus lupulus*)



Home Base
(As Arrows)
1203-M



Horizontal Training 3621R-W4

HORN



Horntail 1096-WN
(*Tremex columba*)



Hornet (Bald Faced)
(*Vespa maculata*)
1716R-MN



Hornet Fly 1717R-MN
(*Asilus aestivus*)



Horn of the Hunter
287R-W



Horned Owl 1744R-MN
(*Bubo virginianus*)



Howitzer 1080-WN
c Trunnion



House Cat 13063R-ML



Howler 1719R-WN
(*Myiotes ursinus*)



Hornbill 1772-W4
(*Buceros rhinoceros*)



Horned Toad 1718-MN



Horse Mackerel (*Orcynus thynnus*) 1714-MN



House Spider 1715R-MN
(*Theridium tepidariorum*)



Horseshoe Crab 2158R-MN
(*Limulus polyphemus*)



House Cricket 1820R-MN
(*Gryllus domesticus*)

H



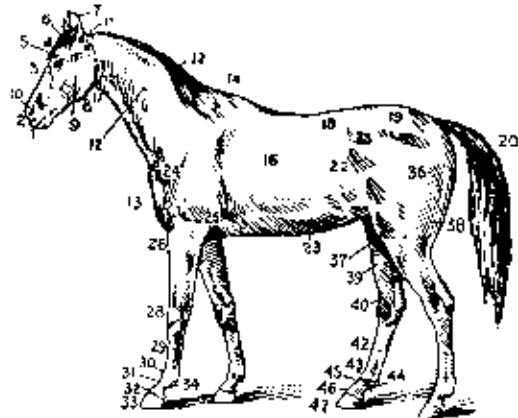
Hourglass 1773R-W4



Hubble-bubble 1774R-W4



House Fly Mouth 1821R-MN
b Maxillary palpi;
c Mandibles;
d Labium



Horse (*Equus sp.*) 6282R-ML



Horse Louse 463RR-M



Houseleek 1863R-MN
A A Offsets



Horse Shoes 6426R-ML
1 Plain Shoe; 2 Shoe with toe & heel calks;
3 Unlucky horse shoe;
4 Lucky horse shoe.



House Fly 4288R-MN
(*Musca domestica*)



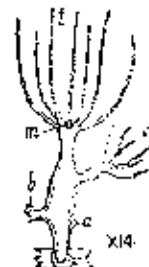
Hurdy-gurdy 1777R-W4



Hummingbird 1887-MN
(*Chrysolampis moschus*)



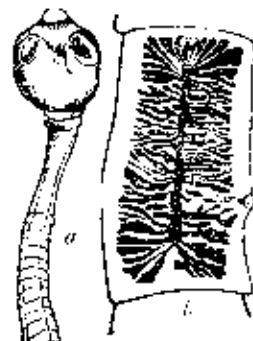
Hummingbird 1775R-W4
(*Trochilus ornatus*)



Hydra 1728R-MN
t Tentacles
m Mouth;
a b c Buds



Humpback Whale 1720R-MN



Human Tapeworm 775R-MN (*Taenia solium*)
a Head; b Mature joint

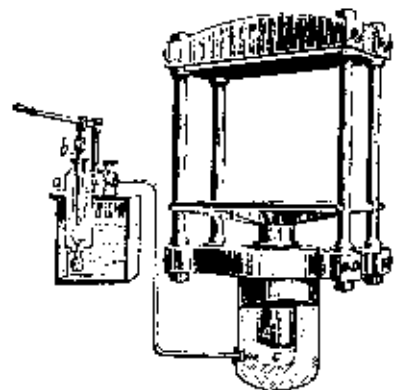


Human Flea 4282R-MN
(*Pulex irritans*)



Hyacinth 1778R-W4

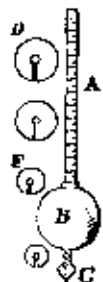
H



Hydrostatic Press 1874R-MN
a Pump; b Small plunger;
c Cylinder; d Large plunger;



Hydraulic Ram 1093-WN
a Valve; b Air chamber;
c Up pipe; d Main pipe



Hydrometer 1779R-W



Hypotricha 1876R-MN
(*Stylonychia mytilus*)



Hydroidea
(*Campanularia johnston*)
1724R-MN



Hydromedusae 1725R-MN
(*Tima formosa*)
m Manubrium



Humpback Whale 1028-WN
(*Megaptera versabilis*)



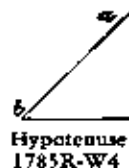
Hygrometer 1781R-W4



Hyena 1721R-MN
(*Hyaena striata*)



Hydrostatic Balance 1780R-W4



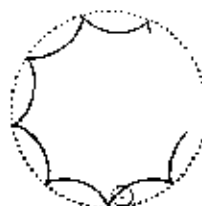
Hypotenuse 1785R-W4



Hyperbolae 1782R-W4



Hypogynous 1784R-W4



Hypocycloid 1808R-W4



Hydrozoa 1749R-MN
(*Tiaropsis diademata*)



Hymenoptera 1896R-MN



Hymenoptera Wing 1098-W



Hymenoptera
Head and Mouth 1091-WN
a Antenna;
m Mandible;
e Compound eye
o Ocelli;
p Maxillary Palpus;
p' Maxilla;
i Ligula

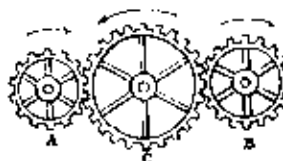
Ii



Lantana 1877R-MN
b Branchiae; h Head; f Foot;
r Raft; e Egg Capsules



Imbricate 1828R-W4



c Idle Wheel 1827R-W9



Imparipinnate 1829R-W4



Ibex 1878R-MN (Capra ibex)



Ibis 1878R-MN (Guara rubra)



Ibis 1898R-MN (Ibis aethiopsica)



Inarching 1880R-W4



Ichthyornis 1114-WN
Measurement is Knowledge



Impact Drill 6618R-M



Increscent 1835R-W1



Impalement 1087R-MN



Ice Skate 2215-W



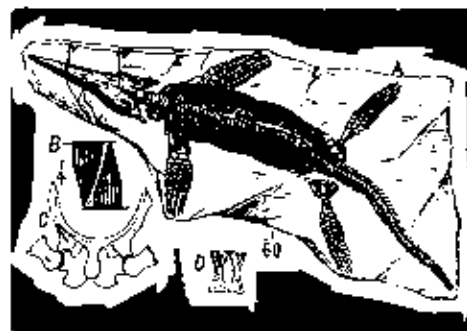
Ichneumon Fly 1906R-MN (Ophion purgatus)



Ichneumon 1899R-MN (Herpestes ichneumon)



Iceland Moss 1825R-WN (Cetraria islandica)



Ichthyosaurus 1108-WN
A Dorsal side embedded in rock; B Two reeth; C Shoulder girdle D Section of vertebrae



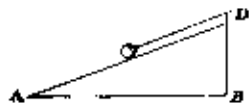
Iguana 1866R-W4 (I. tuberculata)



Incised Leaf
1832R-M4



Incise
1833R-W4



AD Inclined Plane
DB Height; AB Base
1834R-W4



Insectivora Skull 1115-WN



Insignia of the Order
of the Garter 1507R-WN



Imperial Eagle 1303-M

Science is Observation



Indian Corn
1837R-M4
(*Zea mays*)



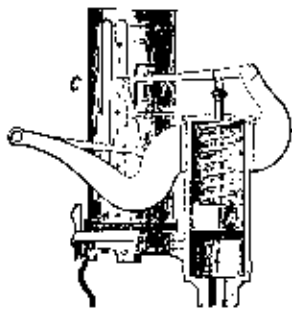
Inflamed
1840R-W1



Indusium
1942R-MN



Indris 1962R-MN
(*I. diadema*)



Indicator 1892R-M
A Small piston; B Pencil



Indicator Card 1890R-M4



Incumbent
1836R-W4



Incised
1832R-W4



Insectivore 1881R-MN
(*Sorex thomsoni*)



Indian Corn
1837R-W4



Inescurcheon
1839R-W9



Impeyan Pheasant
1917R-MN
(*Lophophorus impeyanus*)

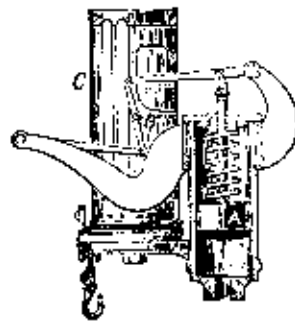
Art is Observation



Insignia of the Order
of the Garter 1508R-WN



Infusorial Earth
1893R-MN



Indicator 108R-MN
B Pencil; C Drum



Indian Pipe
2107R-MN
(*Monotropa uniflora*)



Interferred
1843R-W4



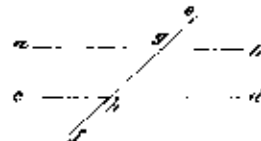
Interlacing Arches
1845R-W4



Io Moth (*Hyperchiria io*) 1111-WN



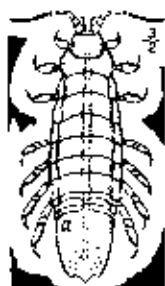
Io Moth Larva 1993R-MN



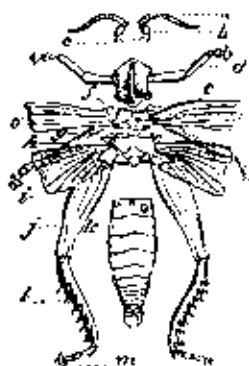
(agh, bgh, ghc, ghd)
Interior Angles 1844R-W4



Involucre 1848R-W4
a involucre; bb involucels



Isopoda
(*Idotea irrorata*)
1118-WN
a Pygidium



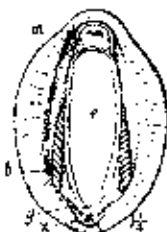
Insect 1867R-W4
a Antennae; b Eyes; c Head;
d Anterior legs; e Prothorax;
f Mesothorax; g Metathorax;
h Middle legs; i, o Wings;
j Posterior legs; k Abdomen;
l Tibia; m Tarsus.



Intusoria 1919R-M



Invected
1848R-W4



Isopleura
1944R-MN
(*Trachydermon
ruber*) f foot;
b gil's; m mouth;
y fenestra; x anus



Involute
1838R-WN



Issuant
1852R-W4



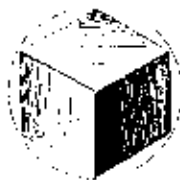
Ionic Order
1849R-W4



Inverted Arches 1847R-W4



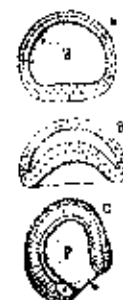
Isabella Moth 1934R-MN
(Latva) (*Pyrrharctia isabella*)



Isometrical Perspective
2566R-WN



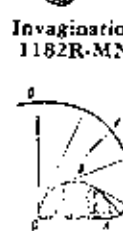
Irish Elk (*Cervus giganteus*) 4365R-MN



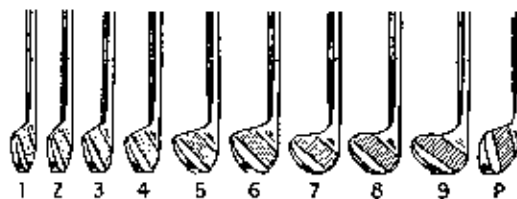
Invagination
1182R-MN



Itch Insect
1918R-MN
(Scabies)



Involute
1352R-MN
Ivy 1905-MN



Irons 6053-M
1 Driving iron; 2 Midiron; 3 Mid mashie 4 Mashie
iron; 5 Mashie; 6 Mashie niblick 7 Pitcher;
8 Pitching niblick; 9 Niblick; P Putter



Irons 6053-M

Jj



Jacamar 1920R-MN
(*Galbula sp.*)



Jabiru 1989R-MN
(Saddle-Billed Stork)



Jacana (*J. spinosa*) 1127-WN



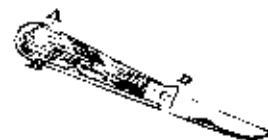
Jaal Goat 1907R-W4
(*Capra jaela*)



Jaal Goat 2993R-MN
(*Capra nubiana*)



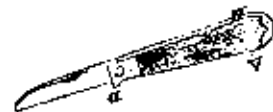
Jackal 1922R-MN
(*Canis aureus*)



Jackknife 2592-M



Jack Plane 2585R-W



Jackknife 2592R-M



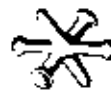
British Jack
1935R-MN



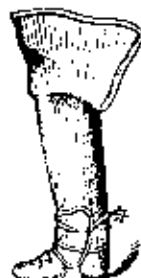
Jack-in-the-Pulpit
(*Arisaema triphyllum*)
1923R-MN



American Jack
2973-W



Jack
8339-ML



Jack Boot
1910R-M4



Jack Coat
2522R-MN



Jack Boot
1910R-W4



Jack
6581R-M



Jackscrew
1276-WN



Juggling Pin
6436R-M



Lifting Jack
1908R-W4



Juggling Pin
8334-M



Jack
2145R-MN



Blue Jay 407R-M



Jaguar 1925R-MN
(*Felis onca*)



Jambes
1911R-W4



Jambes
14464-M4



Jerboa 1947R-MN
(*Dipus aegypticus*)



Jay 1946R-MN
(*Garrulus glandarius*)



Jasmine 1940R-MN
(*Jasmine officinale*)



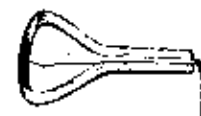
Jonquil
1941R-MN
(*Narcissus jonquilla*)



Jako 1130-M



Joiner's Gauge
1639R-M



Jaw Harp 2154R-MN



Joiner's Gauge
1639R-W



Jager 1937R-MN
(*Stercorarius parasiticus*)



Jacksnipe 1936R-MN
(*Limnocryptes gallinula*)



Johnson Grass
1639R-MN



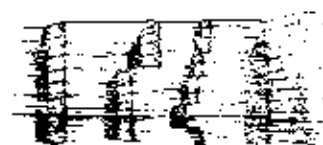
Java Sparrow 1931R-WN
(*Padda oryzivora*)



Jigger 6563-ML



Jessant
1913-W1



Joints 1928R-MN



John Doty 1133-WN



Jump Seat
(One-seat form)
1914R-W4



Journal Box
210R-W4



Jump Seat
(Two-seater)
1915R-W4

J



Junk 5556R-W

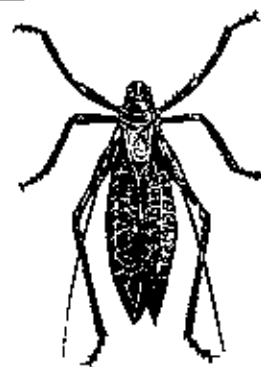


Junco (*J. hyemalis*) 1930R-MN

Kk



Kamichi 2024R-MN
(*Anhima cornuta*)



Katydid 2342R-MN
(*Cyrtophyllus concavus*)



Kaka 2023R-MN
(*Nestor meridionalis*)

K



Kahau 2022R-M
(*Semnopithecus nasalis*)



Kangaroo 1157-M



Kakapo (Night Kaka) 3039-MN
(*Strigops habroptilus*)



Kangaroo 14601-MN
(*Macropus major*)



Keel 1951R-W4



Kanchil 2025R-MN
(*Tragulus kanchil*)

K



Keitloa 2027R-MN
(*Aelodus keitloa*)



Kestrel 1953R-W4
(*Falco alaudarius*)



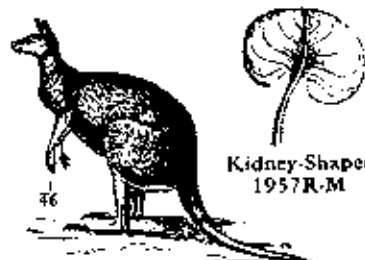
Keystone
1950R-W4



Keelson 1952R-M4
a Keelson; b Keel;
c False Keel



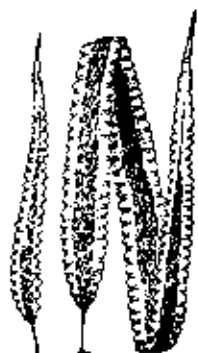
Kentucky Blue Grass
(*Poa pratensis*)



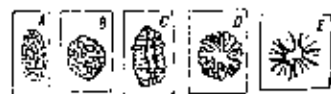
Kangaroo 2026R-MN



Kidney-Shaped
1957R-M



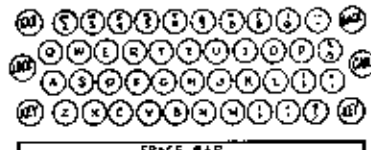
Kelp 2109R-MN
(*Laminaria saccharina*)



Karyokinesis 1173-MN



Kidney-Shaped
1957R-WI



Keyboard 47-54A-M



Kettledrum
1955R-WN



Ketch 1954R-W4



Key Seat 1270-MN

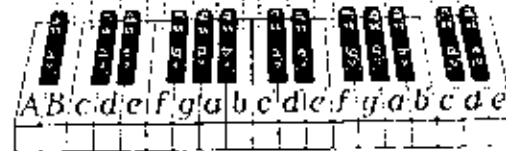
K



Keystone
1956-M4



Karyokinesis 1173-MN



Keyboard 6539R-M



Kidney 6546R-M
1 Ureter; 2 Renal Sinus;
3 Renal Pelvis; 4 Medullary
Cortex; 5 Blood Vessel;
6 Calyces; 7 Papilla of
Pyramid; 8 Pyramid; 9 Para-
nephric Capillary; 10 Renal
Colluma; 11 Fat in Renal Sinus.



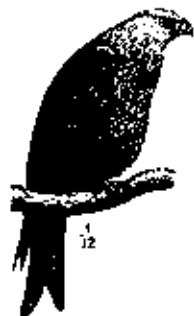
Killdeer 2110R-MN
(*Gallinago vocifera*)

Killer 2088R-MN

Killer Whale
(*Orca gladiator*) 1147-WN

King-Post Roof
1958R-W

K



Kite 2034R-WN
(*Milvius iclinus*)

Kinkajou 1166-WN

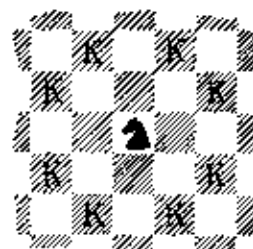
Knight in
Shining Armor
1961R-W4

King Penguin
2032R-M

Kingfisher 135R-W
(*Ceryle alcyon*)

King Tody
2033R-MN

K



Kittiwake 2089R-MN
(*Rissa trid-ctyla*)

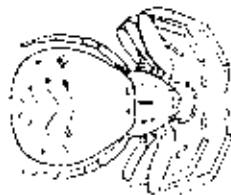
Kingfisher 2030R-MN

Kleeneboc 1959R-W4

Knight Moves 6557R-ML

Knight on Horseback
1962R-W4

Knight in
Full Armor
1961R-M4

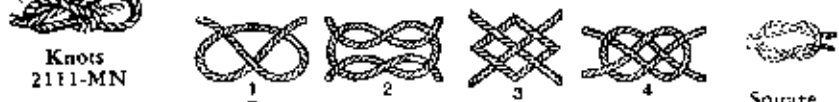
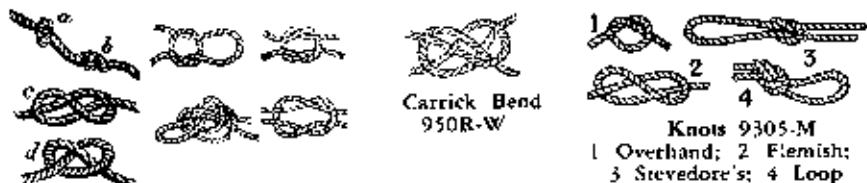


Kinglet
2031R-WN

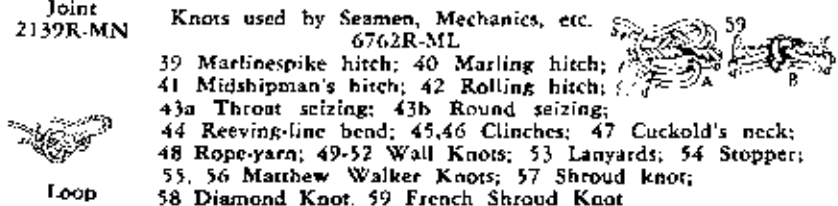
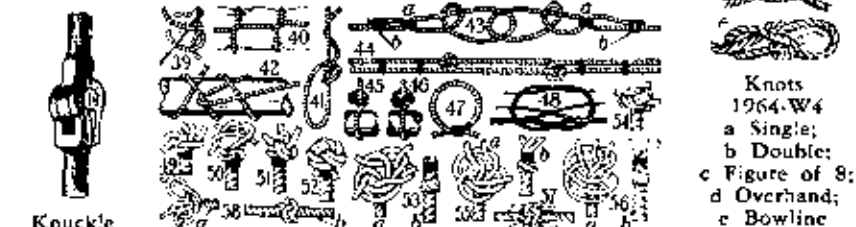
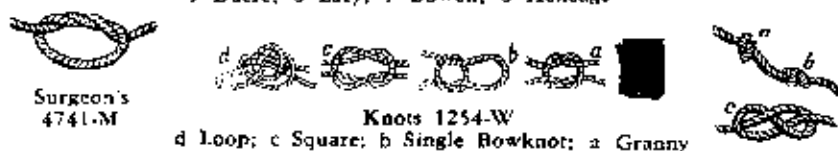
King Crab Spider
405-MN

King Spider Crab 3378R-MN

King Crab 2206R-MN



K



Koala Bear 2036R-MN



Koala 1169-WN
(*Phascolarctos cinereus*)



Knapsack
1960R-W4



Kohl-rabi 2094R-MN

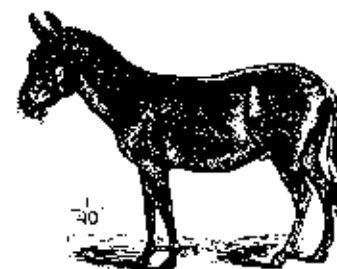


Koodoo 2037R-MN
(*Strepsiceros kudu*)

K



Knuckle Joint
1271-MN



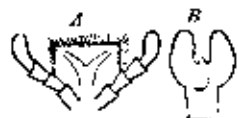
Koulan 2038R-MN
(*Asinus onager*)



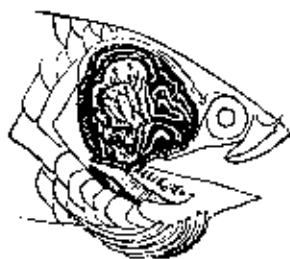
Koala 2036R-MN

L

L



Labium 2044R-MN
A Ligula & Labial Palpi
B Mentum; (OF a Beetle)



Labyrinthici 2085R-MN
(Of the tree climbing Perch)



Labiate
1965R-W



Lady Slipper
2066R-MN
(*Cypripedium spectabile*)



Lammergeir 1230-WN
(*Gypaetus barbatus*)



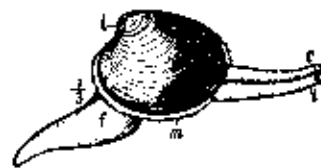
Labyrinthodonta 1181-WN



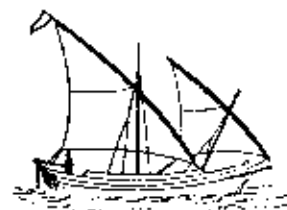
Lacewing 2113R-MN



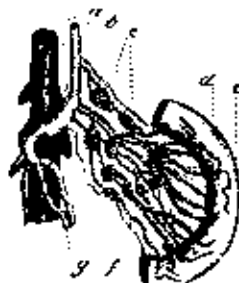
Lag Screw
2140R-MN



Lamellibranchiata 2075R-MN
(*Callista convexa*) a Excurrent
Opening of siphon; i Incurrent
Openings; f Foot; m Mantle;
l Lunule



Lareen Sails 2093R-M



Lacteals 1966R-W4
a Aorta; b Thoracic canal;
c Lymphatic glands;
d Radicals of chyloferous
vessels; e Intestine;
f Mesentery; g Lacteals



Felucca with Lareen Sails
1492-DI



Lag Bolt
3150R-W

L



Lunt (*Ammodytes americanus*) 2047R-MN



Lacewing 2113R-MN
a Mature Fly; b Eggs



Laplander's Sledge 3345R-MN



Lanceolate
1968R-W4



Ladybird
2073R1M



Lance &
Javelin
8130-W



Ladder
Beetle
1185-MN



Lanceolate
1968R-M4



Lantern
1972R-W4



Larva
1265-MN



Lantern
1971R-M4



Larva
2127R-MN



Lantern
1973R-W4

L



Land Crab 1970R-M4



Larch 1975R-M4



Land Crab 1970R-W4
(*Gecarcinus ruricola*)



Lappet Moth 2131R-WN



Lantern Pinion
and Spur Wheel
1974R-W4



Lappet Moth 2131R-MN
(*Tolyte velleda*)

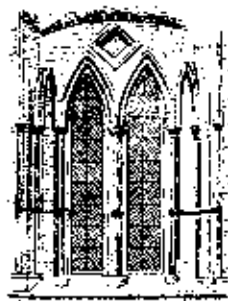
L



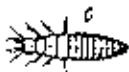
Larynx 1192-WN
A. View from Right Side
a Hyoid bone; b Thyroid cartilage; c Thyrohyoid ligament; d Lower horn of Thyroid;



Landau 1969R-W4



Lancet Arches
133R-MN



Larva
2132R-M



Larynx 2048R-MN
e f Cricoid cartilage; g Cricothyroid membrane; h Cricothyroid Muscle; i Rings of the trachea.



Lantern Fly 2103R-MN
(*Laternaria phosphorea*)



Larva
2127R-MN



Larynx 1191-WN
B. View from Above
During Speech
a Root of tongue; b Epiglottis; c False vocal Cords; d Vocal Cords
C. Larynx at Rest



Lattice
1977R-W4



Lasso Cells 1193-MN
a Thread extruded; b Thread coiled;
c Thread partly extruded; d End of
Thread when partly everted.



Lattice
1978R-M4



Leaf Insect 2139-MN
(*Phyllium siccifolium*)



Leaf 545R-W
Compound
Annually



Lazy Tong
2122R-MN



Leaf
1981R-W4
b Blade
p Petiole
st Stipules



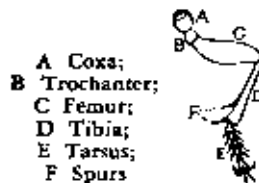
Leaflets
1982R-M4



Lasher 1371R-W4



Laver 1979R-W4



Leg of Insect
1073-MN



Leap Frog
1983R-W4



Leaflets
1982R-W4



Laughing Jackass
(*Dacelo gigas*) 1194-MN



Latitudes 9405-M



Lazy Tong 1249-WN



Leather Punch
5188R-M



Leatherback 1255-WN
(*Sphargis coriacea*)



Lecturn
1984R-W4



1BJ 156-W



Layers 1980R-W4



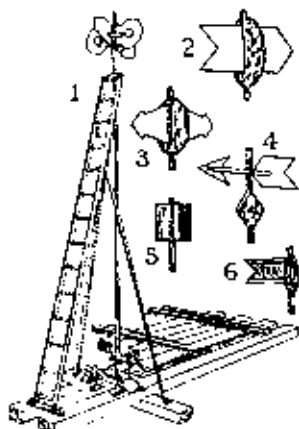
Leaf Cutter 2180R-MN



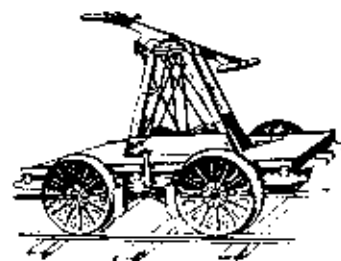
Leaf Cutter 1262-WN
(*Megachilo centuncularis*)



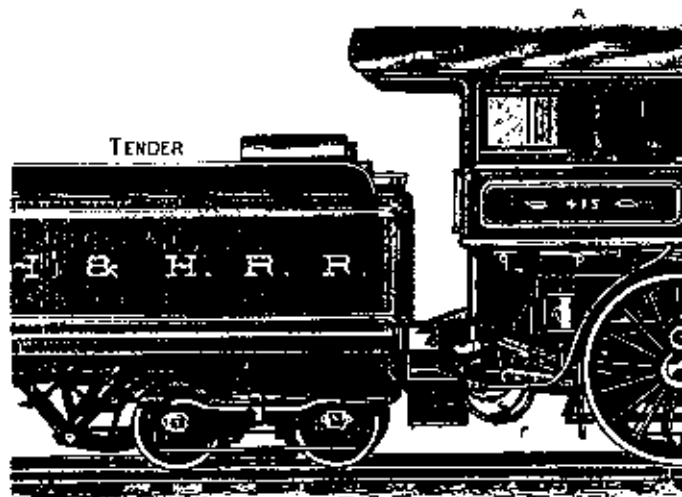
Leap Frog
1983R-M4



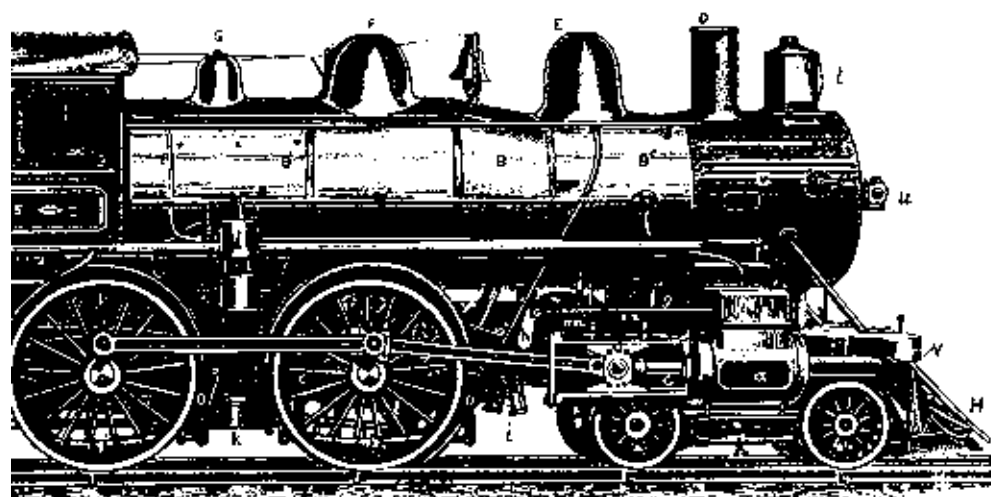
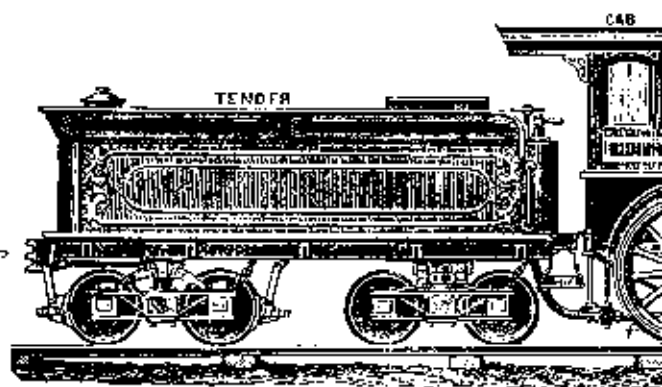
Semaphore 6675R-ML



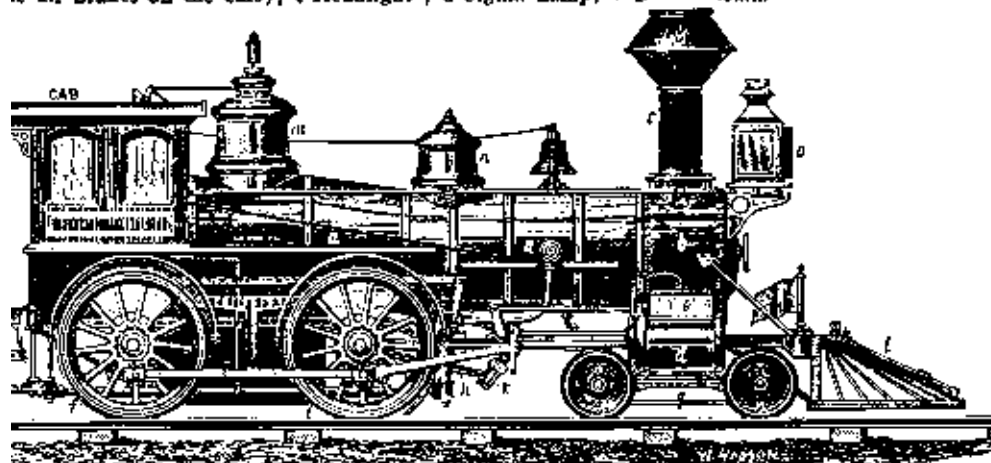
Railroad Work Car 6093R



Locomotive p1267-WN - Passenger Express Locomotive
D Smokestack; E Sand Box; F Main Dome (for throttle valve) C
Truck; L Truck Wheel; M Tender Truck; N Tender Scoop, or
Chest; c Piston Rod; d Crosshead; e Connecting Rod; f Side Rod
k Driving Wheel Spring Equalizer; l Air Brake Pump; m Mai
Auxiliary Air Reservoir for Driving Wheel Brake; q Air Reserv
injector in the cab); s Train Pipe Hose (leading to the air bra



ocomotive. A Cab; B Boiler, wagon-top; B' Boiler, barrel; C Smoke Box and Extension Front;
e valve) G Safety Valve Dome; H Pilot or Cowcatcher; J Driving Wheel, or Driver; K Engine
coop, or Track Scoop (for taking water from the track while running); a Cylinder; b Steam
Side Rod, or Parallel Rod; g Valve Rod; h Rocker; i Link Motion; j Counterbalance Weight;
; m Main Air Reservoir; n Driving Wheel Brake Cylinder; o Driving Wheel Brake Shoe; p
ir Reservoir for Signal Whistle; r Fred Pipe Hose (for leading water from the tender to the
e air brakes on the cars); t Headlight; u Signal Lamp; v Buffer Beam.



Locomotive 14477-M



Leech (*Hirudo medicinalis*) 2091R-MN
a Ocelli; b Ventral side; c Acetabulum



Leipoa 2021R-W4
(*Leipoa ocellata*)



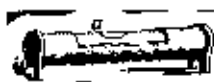
Legume 1223-WN
(After dehiscence)



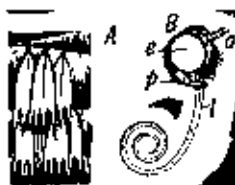
Lemur 2052R-MN
(*Lemur albifrons*)



Lenulites
2016R-W



Level 1268-WN



Lepidoptera 1197-WN
A Portion of a wing; B Head;
a Antenna; c Eye; l Proboscis;
p Labial Palpus



Leopard 2157R-MN
(*Felis leopardus*)



Lepidostreus 2124R-MN
(*L. paradoxus*)



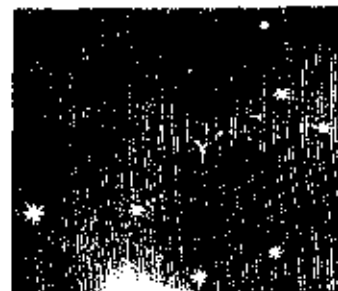
Lemming 2077R-MN



Lemming 1232-WN
(*Myodes lemmings*)



Lepisma
1257-WN



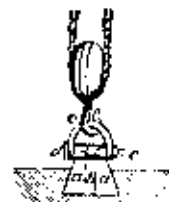
Leo 1351-WN



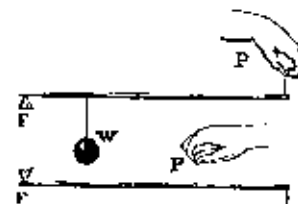
Lepisma
2126R-MN



Lever 1988R-W4



Lewisson
1989R-M4



Lever 1987R-W4
P Power;
F Fulcrum; W Weight



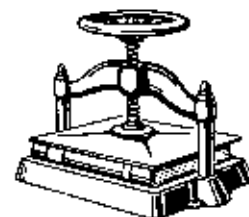
Lepidodendron
2097R-MN



Letterpress 8761-ML



Lichen 2000R-M4
(*Usnea barbata*)



Letterpress 14445-ML



Lichens 1999R-W4
2,3 *Cladonia pyxidata*
4 *Parmelia pallescens*



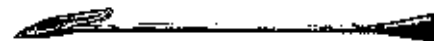
Lifeboat 4043R-W



Lighthouse 2002R-W4



Ligule 2003R-W4



Lily Iron 2137R-MN



Lifeboat on Boat Wagon 5823-M



Lighthouse 2002R-M4

L



Lieutenant 4436R-ML



Lieutenant General 4410R



Lifeboat 2926R-W



Linguatolina 1231-WN
(*Peulastomum taenioides*)

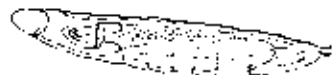


Line of Beauty 2006R-MN
(on a palette)



Lifeboat 8132-M

L



Lindia (*L. tarulosa*) 1233-WN



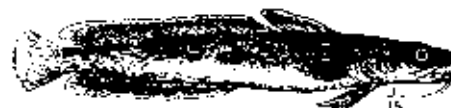
Life-Boat 663-DI



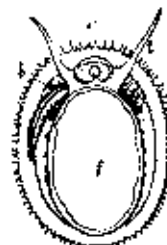
Lingula (*L. anatina*) 2098R-M



Limpets 2116R-MN



Ling (*Molva vulgaris*) 2079R-MN



Limpet 2118R-M



Lily of the Valley 2070R-MN
(*Convallaria majalis*)



Limax 2104R-MN
(*L. campestris*)



Limacina 2152R-MN
(*L. antarctica*)



Lily 1225-MN
(*Lilium candidum*)

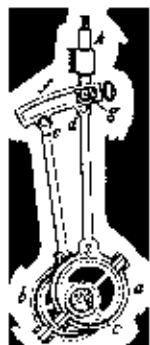


Lime 2005R-W4
(*Citrus medica*)



Linnet 1367-WN
(*Acanthis linaria*)

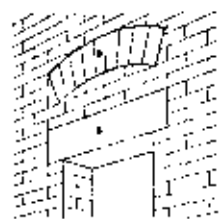
LINK



Link Motion
1278-WN



Liriodendron 2068R-MN
(*Liriodendron tulipifera*)



Lintel 975R-MN
a Discharging arch
b Lintel



Lizard's Tail
2008R-W4



Lithosia 1202-MN
(*Deiopeia bella*)



Link Motion
1278-MN

LOAD



Littorina
(*L. palliata*)
2080R-MN



Lioness and Whelps 2143R-MN



Lion (*Felis leo*) 2153R-MN



Load 897R-MN



Lithodomus 1332-WN
(*Lithodomus plumula*)



Liver Shark (*Cetorhinus maximus*) 1203-WN



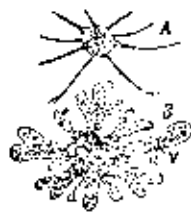
Llama (*Auchenia llama*) 1236-WN



Lizard (*Lacerta viridis*) 2099R-MN



Loach 1990R-W4
(*Nemachilus barbatus*)



Lobosa 2055R-MN
A *Amoeba radiosa*
B *Amoeba proteus*



Lodged
1994R-W4

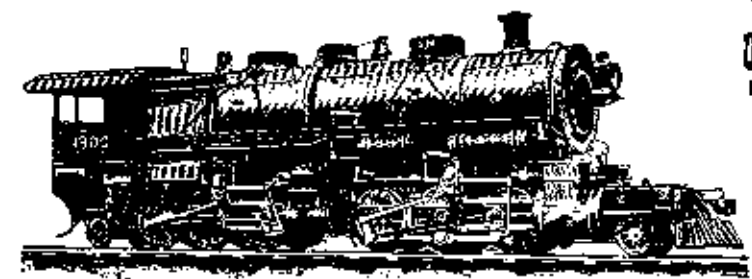
And lay lodged—though not dead,
I know how the flowers felt. —Frost



LBB 8117-W



Lobare
1991R-W4



Locomotive 6862R-M



Log. Line,
& Glass
8050-W

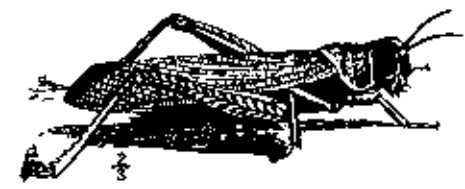
L



Lobster 1992 W4
(*Palinurus vulgaris*)



Lobster 2056R-MN
(*Homarus americanus*)

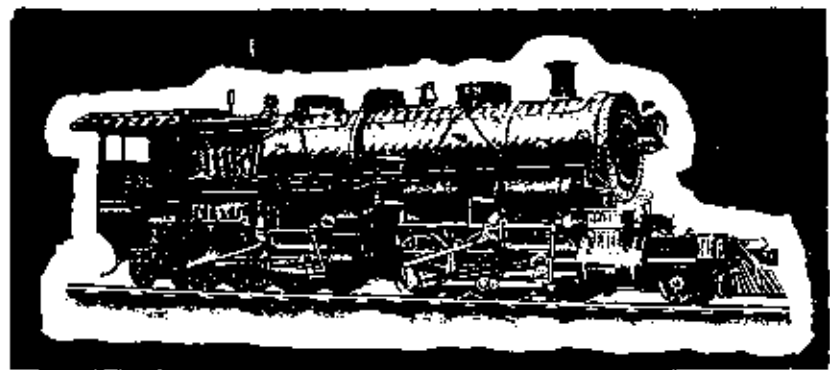


Locust (*Eidipoda migratoria*) 2057R-WN



Lobster 2056R-MN

L



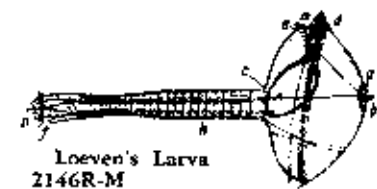
Locomotive 6862R-W



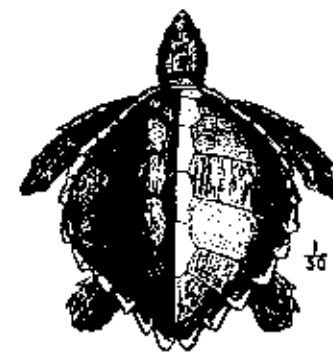
Longicornia
2117R-MN



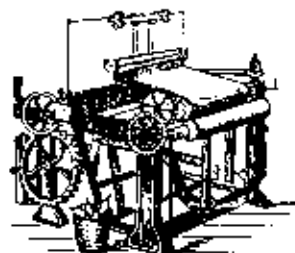
Log Cabin 9023-M



Loeven's Larva
2146R-M



Loggerhead 2106R-MN
(*Thalassochelys caretta*)



Loom 19997R-W4

Longspur 2068R-MN
(*Calcarius lapponicus*)Loon 1212-WN
(*Urinator imber*)

Longitudes 9404-ML

Longirosters
1996R-W4
a Glossy Ibis;
b Godwit; c Stilt

Lorikeet 2160R-MN



Loment 1995R-MN

Loligo (*Loligo pealei*) 2125R-MNLophiomyx 2085R-MN
(*Lophiomyx imhausi*)

Lophobranchii 1213-WN

Loosestrife
1998R-W4Louse Mite
1215-MN
(*Dermaleichus
chelopus*)Lozenge
2012R-W1Louse
181R-WLouver
Window
2009R-W4Lotus 2071R-MN
(*Nelumbium luteum*)Loricata 1241-WN
(*Tolypautes tricinctus*)Longirosters
1996R-M4Loris 2161-W4
(*Loris ceylonicus*)Loricata
1242-WN
(Rolled up)Lucernaria
1216-WNLouse 2112R-MN
(*Pediculus capitis*)Lucernaria
2060R-MN
(*L. quadricornis*)



Lug 2013R-W4
A, A Lugs



Lunulite 2017R-W4



Lunate
2015R-W4



Lycopodium
2090R-MN
(*L. clavatum*)



Lygodium 2082R-MN
(*L. palmatum*)



Lugger
2953-W



Lugger 2014R-W4*



Luge 7095R-M



Lyrate
1239-M4



Luna Moth 2061R-MN
(*Actias luna*)



Lyme Grass
4372R-MN

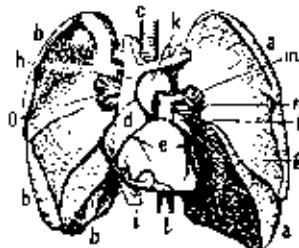


Lugworm (*Arenicola marina*) 2106R-MN



Lute 2018R-W4

*Knaves are men
That lute and flute fantastic tenderness.*
- Tennyson



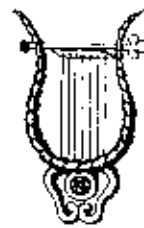
Lungs & Heart 2062R-MN
a a Upper & lower lobes of left lung; c Trachea, k Arch of aorta; m Pulmonary artery



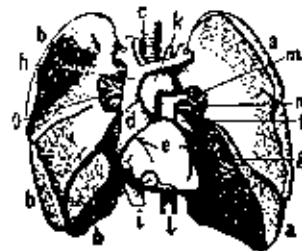
Lyx (*Felis canadensis*) 1220-WN



Lyre Bird 1221-W4
(*Menura superba*)



Lyre
2019R-W4



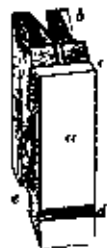
Lungs & Heart 2062R-MN
b b Upper, Middle, & lower lobes of right lung; d Right auricle; e Right ventricle



Mm



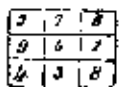
M Roof
C965R-MN



M
3658R-WN



Magnet 14573-ML



Magic Square
2231R-M4

Macaw
2314R-MN
(*Ara araucana*)



Malacopoda (*Peripatus capensis*) 2218-M



Magpie (*Pica pica*) 2165R-MN



Maiden
2232R-W4



Maki 2207-W4
(*Lemur catta*)



Major 4411R-W

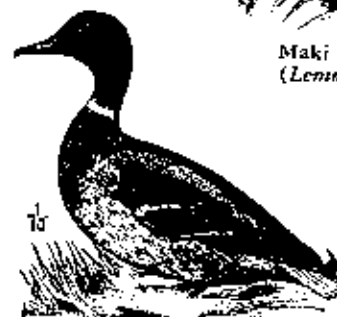
M



Mackerel 2163-MN
(*Scomberomorus maculatus*)



Maize 2194R-MN
(*Zea mays*)



Mallard (*Anas boschas*) 2286R-MN



Mackerel (*Scomber scombrus*) 2162R-MN



Maioid Crab 2216R-W4
(*Parthenope horrida*)



Madrepora 1370-WN
(*M. prolifera*)



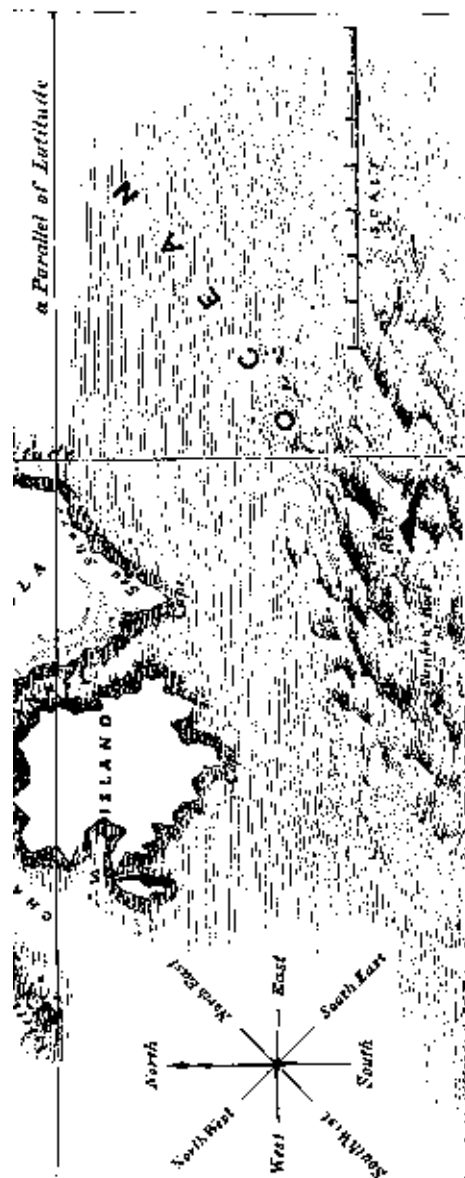
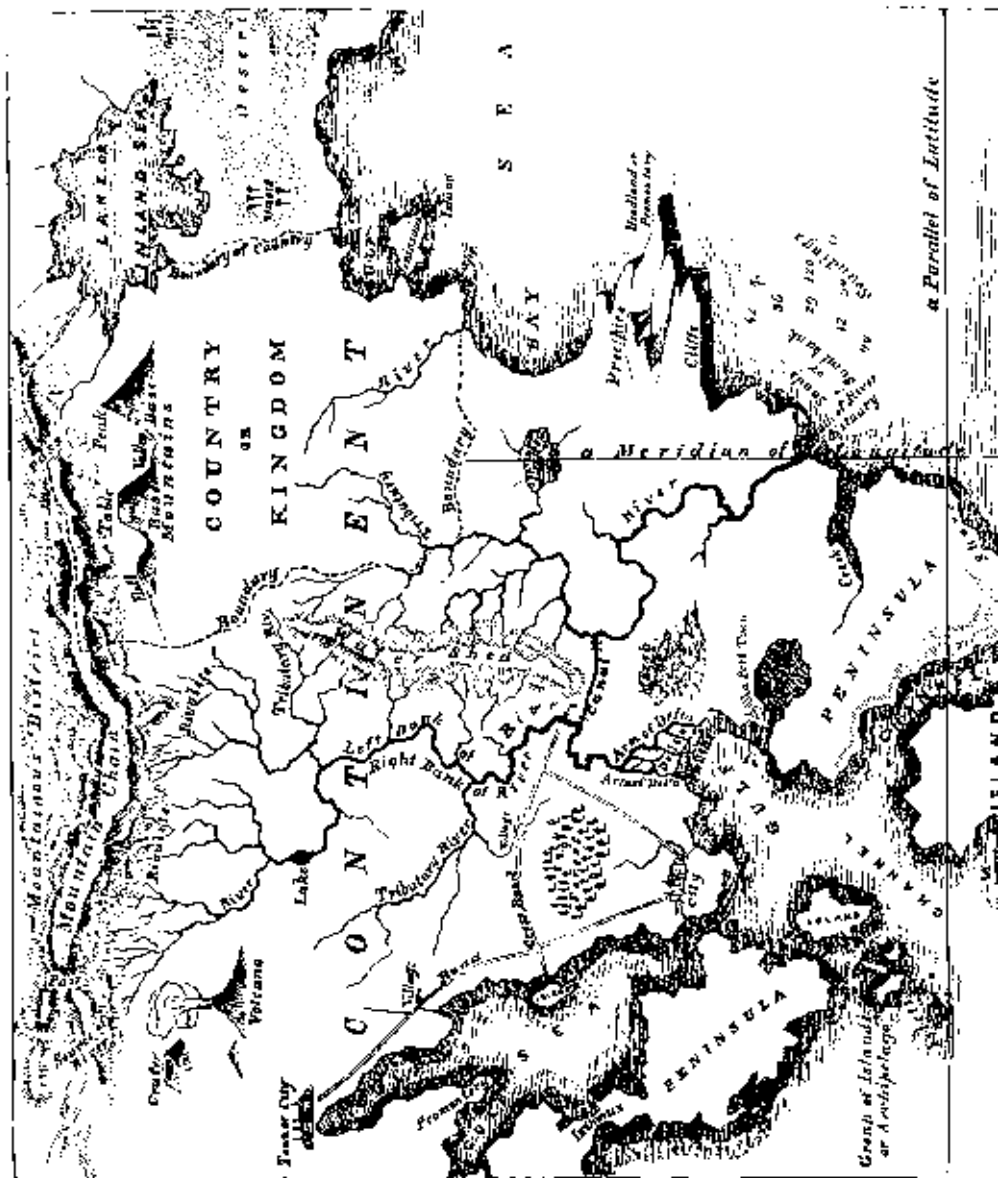
Mactra 2199R-MN
(*Mactra lateralis*)



Maize
1837R-W



Madreporaria 2200R-MN
(*Astrangia danas*)
a, b, c Three Polyps



M

M

Map 4391R-W



Mango Tree 2235R-W4
(*Mangifera indica*)



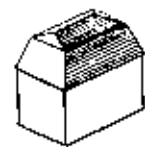
Mare's-tail 2236R-W4
(*Hippuris vulgaris*)



Margay 2220R-MN
(*Felis tigrina*)



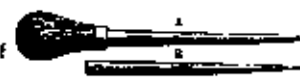
Manx Cat 2219R-MN



Mansard Roof 6817R-MN



Manifold 1286-WN



Marline Spikes 1313-WN



Mantis 2208-W4
(*Mantis religiosa*)



Mandrill 2316R1WN
(*Cynocephalus mormon*)



Man 14580-82-ML
1 Java Man; 2 Neanderthal; 3 Cro-Magnon



Locomotive Baboon
2316R-MN

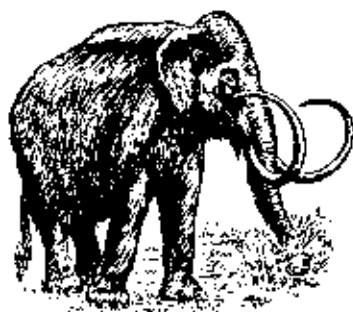


Mangel-Wurzel
2234R-W

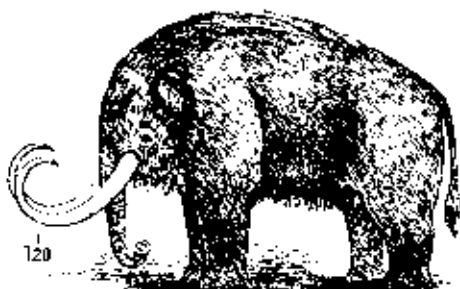


Mandrill 2316R-MN

M



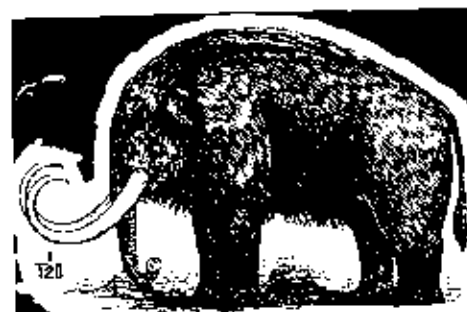
Mammoth 6693R-M



Mammoth (*Elephas primigenius*) 1356MN



Mandrake 2233R-W4
(*Mandragora officinarum*)



Mammoth 1356-W

M



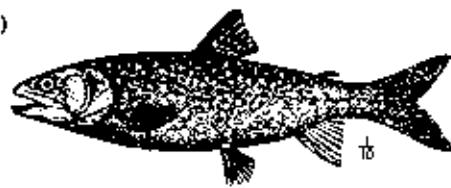
Manatee 1287-WN
(*Trichechus americanus*)



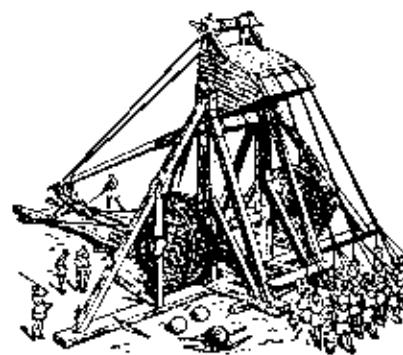
Mange Insect
2195R-MN



Mallotus 2166R-MN



Malma (*Salvelinus malma*) 2330R-W



Mangonel 6153R-M



Marmoset 2170R-MN
(*Midas chrysometas*)



Mangle
8455-M

MARSH



Mangrove 2284R-MN
(*Rhizophora mangle*)



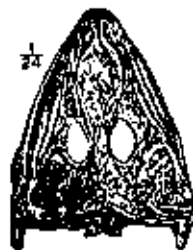
Marmot 1371-WN
(*Arctomys marmott*)



Marsh Harrier
2237R-W4



Marginella
(*M. subeculata*)
2189R-MN



Mastodonsaurus
2317-MN
(*M. jaegeri*)



Mask 981R-MN



Mastiff 2196R-MN

M



Maske
2240R-W1



Marsh Harrier 2303R-M4
(*Circus aeruginosus*)



Martlet
2239R-W1
Don't trust your feet.



Marsh Marigold
2189R-MN
(*Calliba palustris*)



Marsh Wren
2171R-MN



Maxilla
2174R-MN



Martin 2172R-MN
(*Progne subis*)

M

MEADOW



Mason's Trowel 3642R-W



Matamata 2318R-MN
(*Chelys fimbriata*)



Meadow Foxtail
4315R-MN



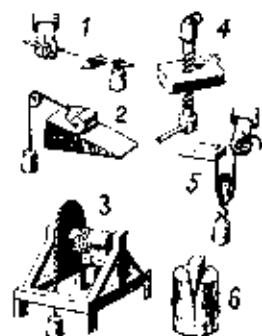
Mazoma 2202R-MN



Meadow Lark 2176R-MN
(*Sturnella magna*)



Meadow Fescue
4914R-M



Mechanical Powers
2297R-MN



Martel de Fer
2238R-WN



Meal Worm 2288R-MN
(*Tenebrio molitor*)



Meagre (*Sciaen aquila*) 2319R-MN



Menhaden (*Brevoortia tyrannus*) 1637-M



Menobranch 2290R-MN
(*Necturus maculatus*)



Melons 1320-WN



Melon Thistle Cactus
449R-W



Mermaid 2249R-MN

M



Medlar 2225R-MN
(*Mespilus germanica*)



Melianian
2177R-MN



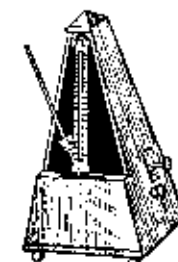
Medusa 1374-WN
(*Calliomena ornata*)



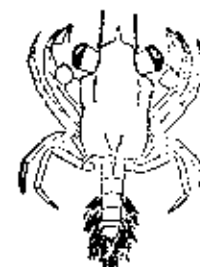
Megatherium 2209R-M4



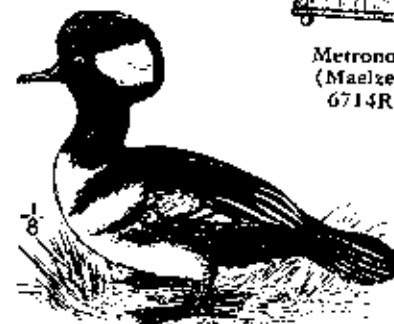
Measles 2197R-MN



Metronome
(Maelzel's)
6714R-M



Megalops 2346-MN
(*Cancer irroratus*)

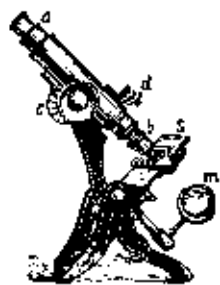


Metganser 2291-MN
(*Lophodytes cucullatus*)



Metatarsus
of Horse
4366R-M

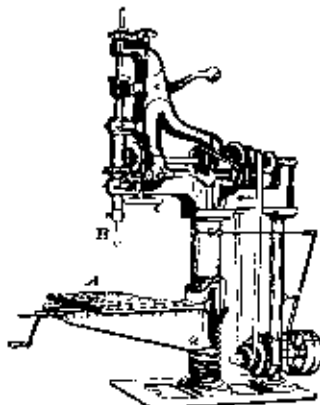
M



Microscope
1421-MN



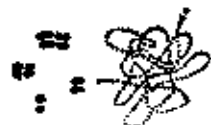
Microscope
2251R-W4



Mill 1069R-W4



Mirage 2256R-W4



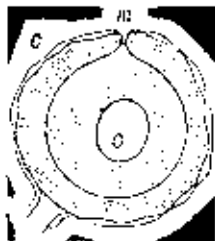
Micrococcus
(Spherobacteria)
249-MN



Mermaid 2249RA-MN



Micrometer
Gauge
2226R-MN



Micropyle
1374-WN



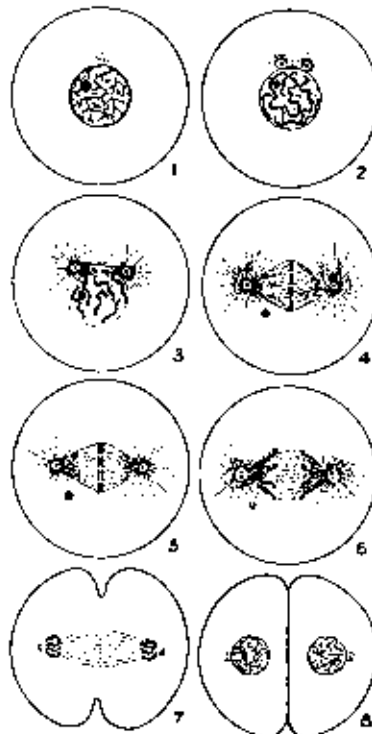
Meteorite 2187R-MN



Millepore 1375-WN



Miller's Thumb 2254R-W4



Mitosis 6726R-M
1 Resting Nucleus; 2 Arrangement of chromatin, development of asters & spindle; 3 Destruction of Membrane; 4 Spindle completed; 5 Splitting of chromosomes; 6 Separation into halves; 7 Grouping of chromosomes at the spindle poles; 8 Completion of division - resting.



Microscope
2251R-M



Miter Shell
2179R-MN
(*Mitra episcopalis*)



Minaret 1132R-MN



Mignonette 2350R-MN
(*Reseda odorata*)



Military Drum
107R-W4



Minie Ball
2255R-W4



Miter
2258R-W



Miter Wheels
2260R-W4



Miter
2258R-W4



Miter Wheels
2260R-M



Mistletoe 2257R-W4
(*Viscum album*)



Mongolian
4407R-W4



Moccasin Flower
2190R-MN
(*Cypripedium acaule*)



Moniliform
2264R-WI



Modern Drawbridge 1063R-W4



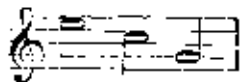
Mistletoe 2372-MN

M

M



Moa 1345-WN
(*Dinornis ingens*)



Mimus
5547R-M4



Mocking Bird 2313R-WN
(*Mimus polyglottos*)



Mouldings 5439R-M



Male 4395R-MN
(*Scalops aquaticus*)



Milling Cutter
1350-WN



Mole 4395R-MN



Mohr (*Gazella mohr*)
2321R-MN



Monstrance
2268R-W4



Mink 2178R-MN
(*Putorius vison*)



Monkey
(*Cebidae*)
2212R-W4



Monkey (c)
(*Lemuroidea*)
2213-W4



Monkey (do)
(*Simiadae*)
2211R-W4



Morion
2273R-W1



Monkey Wrench 2327R-MN



Monkey
22124R-M4



Molars 3659R-W4



The Monitor 2311R-W4



Monopealous
1841R-W1



Monads 2180R-MN
1 *Monas guttula*
2 *Uvella glaucoma*



Mural Crown
2279R-W4



Moonfish 2294R-MN
(*Vomer setipennis*)

M



Monkey Wrench 2327R-MN



Moloch 1362-MN
(*M. horridus*)



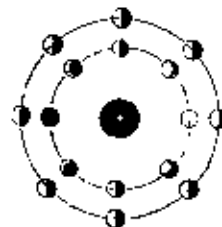
Mollusks 2801R-W4
Cephalopods (1 Squid, 9 Nautilus);
Brachiopods (2 Terebratula, 3 Lingula)
4 Bryozoan; 5,6 Conchifers or Acephals;
Cephalates (7 Gasteropod, 8 Pteropod).



Moon Phases 1590-M



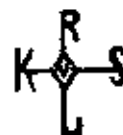
Moon-Hen 2271R-W4
(*Fulica chloropus*)



Moon Cycle
2269R-W4



Moor Fowl 2270R-W4
(*Lagopus scoticus*)



Monogram
2265R-W4



Mootish
Capital
770R-MN



Chrimatory
503R-W4



Mole Cricket 2210-W4
(*Gryllotalpa vulgaris*)

M



Mortar & Pestle
6349R-M



Mosquito 2434R-MN



Mortar & Pestle
6349R-M



Morel
2191R-MN



Mouse 2283RA-MN
(*Hesperomys leucopus*)



Morel
1318-WN
(*Morchella
esculenta*)



Moose Tick 2359-WN
(*Ixodes albipictus*)
A Adult; C Mouth of young



Moose Tick 3804R-MN
B 6-legged young



Morpho 1377-MN
(*Morpho belear*)



Moose Tick 3803R-MN
a Proboscis; b Mandible;
c Palpus



Motmot 2323-MN
(*Momotus momota*)
b Tail Feathers
(*M. lessoni*)



Moss Rose 2192R-MN



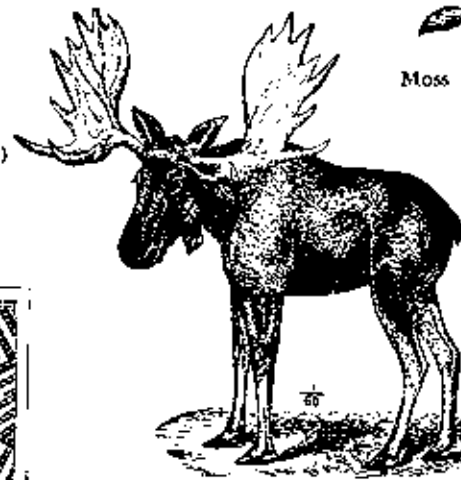
Moose (*Alces macblis*)
7262R-M



Mosquito 1305-WN
B Side O' Head: a Antenna;
e Eye; b Labrum; c Mandibles;
l Labium; p Labial Palpus;
d Maxillae; f Epistome;



Mortar on its Bed 2274R-W4



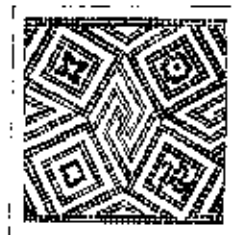
Moose (Knisteneaux)
1314R-MN



Morula
2329R-MN
(Mulberry
mass)



Moss Rose 1319-WN



Mosaic 2275R-W4



Mullet (*Mullus barbatus*) 2312R-MN



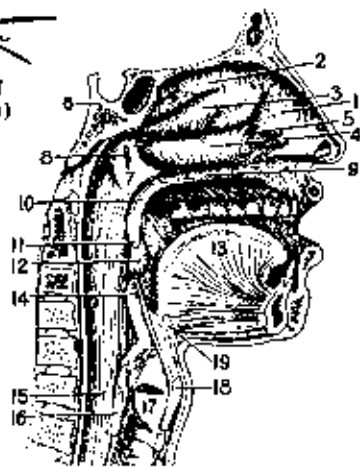
Mud Crab 2428R-MN
(*Panopeus depressus*)



Moth 2299R-MN
(*Leucarcia aenea*)



Mud Wasp Nest
1365-WN



Mouth 6746R-M

- 1 Nasal fossa; 2,3,4 Superior, middle, inferior, canchae; 5 Lacrimal duct;
- 6 Sphenoid bone; 7 Pharynx; 8 Eustachian tube; 9 Hard palate; 11 Uvula;
- 12 Tonsil; 13 Tongue; 14 Epiglottis; 15 Esophagus; 16 Cricoid cartilage;
- 17 Larynx; 18 Thyroid cartilage; 19 Hyoid Bone.



Mulberry
(*M. nigra*)
2276R-W4



Mullions
2277-M4
aaa Mullions;
b b b Transom



Muskellunge (*Esox nobilior?*) 2309R-MN



Mountain Quail 2295R-MN
(*Oreortyx pictus*)



Musang 2198R-MN
(*Paradoxurus fasciatus*)



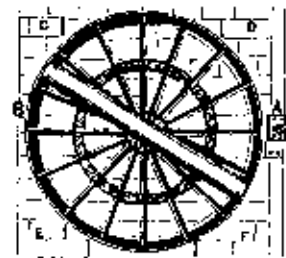
Mullet (*Mugil cephalus*) 15336-MN



Mucronate Leaflets
2439R-MN



Mouflon 2215R-M4
(*Ovis musimon*)



Mural Circle 2278R-W4
A Reading Microscope;
C D E F Wall



Mushrooms 2443R-MN
(Agarics)



Mushroom (*Agaricus campestris*) 2443-M
A Mushroom; a Annulus, B Section of Gill
1 Trama; 2 Hymenium; 3 Basidium;
4 Sterigma; 5 Basidiospore



Murre 2182-MN
(*Uria troile*)



Mute
14653-ML



Muntjac 2181R-M
(*Cervulus muntjac*)



Mute 14659-ML



Myriapod 1576-WN



Mural Crown
2279R-M4



Myriapod 2626R-MN

M



Myna 2326R-MN
(*Acridotheres tristis*)



Music Shell 2183R-MN
(*Voluta musica*)



Musk Deer 2185R-MN
(*Moschus moschiferus*)



Mesembryanthemum
2250R-W4



Mycetes 2280R-W4



Myrtle 2281-M4
(*Myrtus communis*)

M



Muskrat 240R-WN



Musk Ox 2204R-MN



Mygale 1546-WN
(*M. hentzi*)

Nn



Narcissus
2343R-MN



Nautilus
2801R-MN



Natica 2373R-MN
(Lunatia heros)



Nautilus
1239R-W



Nemertina 2334R-MN
(Tetrastemma elegans)



Nasturtium
2344R-MN

N



Napiform
2356R-W4



Narwhal (*Monodon monoceros*)



Napiform
2356R-M4



Nautilus 2445R-MN



Natant
2357R-W1



Nerita 2368R-MN
(*N. ustulata*)



Necrophagan
2358R-M4



Node
14679-M4

N



Namaycush 2330R-MN
(*Salvelinus namaycush*) (Lake Trout)



Napu 2331R-MN



Nepenthes
2379R-WN



Nematoid Worm 4345R-M



Nebalia (*N. Geoffroyi*) 2352R-MN



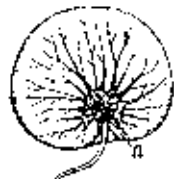
Newel
979R-MN
(Zuzu's petals)



Night Hawk 2871R-MN
(*C. virginianus*)



Notes 5545-M



Noctiluca
2337R-MN



Nest 2359R-W4



Nightingale 2336R-MN
(*Luscinia luscinia*)



Nodulous
2362R-W4



Night Heron 2354R-MN
(*Nycticorax griseus*)



Nimble Will
4316R-M



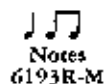
Neuroptera
2687R-WN
(*Mantispa interrupta*)



Nototrema 2447R-MN
(*N. marsupiatum*)



Noddy (*Anous stolidus*) 2374-WN



Notes
6193R-M



Newfoundland Dog 2369R-MN



Nuthatch
1409R-WN



Nut Weevil
1410-MN
(*Balaninus nasicus*)



Nudibranchiata 1433-WN
a *Cratena gymnola*
b *Ancula cristata*



Nut Buoy
963R-W



Nutcracker
2363R-W4



Nut
1415-WN



Noddy 2374R-MN



Nutcracker 2405R-MN
(*Nucifraga caryocatactes*)



Nyula 1412-WN
(*Herpestes nyula*)



Nurse Shark (*Somniosus microcephalus*)



Nymphaea
(*N. odorata*)
2509R-MN



Nymphales 2770R-MN
(*Basilarchia arthemis*)

N



Nyghau 2341R-MN
(*Boselaphus tragocamelus*)



Nyula 2342RA-MN

Oo



Oblanceolate
2407R-W4



Oarlocks 3473R-M



Oboe (Haurboy) 1056-WN



Ochreate
2411R-W4



Octagon
2412R-M4



Ocellated Turkey 2699R-MN
(*Meleagris ocellata*)



Obovate
2409R-W4

O



Obstretical Toad
(*Alytes obstetricans*)
2430R-MN



Ocelor 1579-WN
(*Felis pardalis*)



Obstretical Toad
1439-WN



Octandrous
1537-MN



Octopus 2697R-MN



Ocellus
e Compound eye
o Three ocelli;
1475-WN



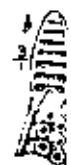
Oil Beetle
(*Meloe angusticollis*)
1444-MN



Oliva 2437-MN
(*Oliva porphyria*)



Oil Cup
1648-WN



Octopus Sucker
2679R-MN



Octopus 2932-WN
(*Octopus bairdii*)



Octocerata 2414R-W4
(*Eledone ventricosa*)



Onion Fly
2769R-MN



Odonata
2381R-MN
(*Agrion saucium*)



Okra 2658R-MN
(*Hibiscus esculentus*)



Old Squaw (*Clangula hyemalis*) 1446-MN



Oestrus
(*Oestrus ovis*)
2384-MN



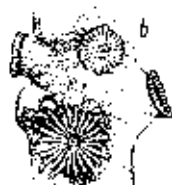
Oligochaeta 1447-MN
(*Halodrilus littoralis*)



Octocerata 2413R-M4
(*Argonauta argo*)



Oil Cup
2724R-MN



Oculina 2692R-MN



Ocypodian 2427R-W4



Oculina 1620-WN



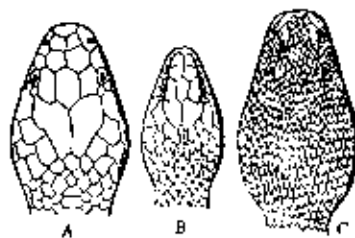
Olive 2630R-MN



Odonata
2382R-MN
(*Calopteryx*)



Oncidium 2631R-WN
(*Oncidium papilio*)



Ophidia 2438R-M4
a Elapine; b Colubrine; c Viperine



Opera-glass
2415R-W4



Opah 2587R-MN
(*Lampris guttatus*)



Orchis 2419R-W4



Orange
2417R-W4



Orchard Oriole & Nest
(*Icterus spurius*)
1455-WN



Orangutan 2627-MN
(*Pongo pygmaeus*)



Orion 1641-WN



Orange Scales 2439R-M
a Broad; b Purple; c Long;
d Red; d' Male; d'' Female



Oriole 2632R-MN
(*Oriolus galbula*)



Oriel 2420R-W4



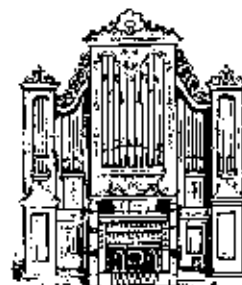
Orbiculate
2418R-W4



Ootheca 1649-WN



Orang-outang 1456-WN
(*Simia satyrus*)



Organ 2440R-MN



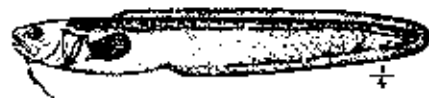
Orchard Grass
4317R-MN



Opossum 2390R-MN
(*Didelphys virginiana*)



Ophicleide
2416R-W4



Ophidioid 2388R-MN
(*Ophidion marginatum*)



Orrery 2421R-M4



Orrery 2421R-W4



Orgyia 1684-WN



Oryctere 5R-W4



Orthis 1469-WN
(*Orthis lynx*)



Ouakari 1622-WN



Ornamental
Bracelet 280R-W4



Ousel 2422R-W4
(*Cinclus aquaticus*)



Ortolan 2639R-MN
(*Emberiza hortulana*)



Orthoptera 1650-MN



Orgyia 2420R-MN
(*Orgyia leucostigma*)



Ounce 2743R-MN



Otter Hound 2660R-MN



Ovate-
acuminate 1537-MN



Osmaterium 2807R-MN
Larva of Troilus Butterfly



Ovate-
acuminate 2637R-WN



Ovary (Plant) 1586-WN



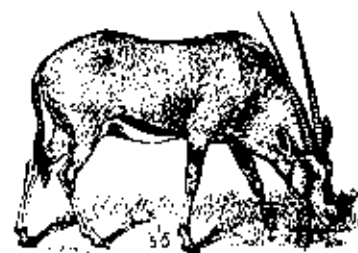
Otter 2764R-MN
(*Lutra canadensis*)



Order Arms 888R-MN



Oscules of Sponge 2628R-MN



Oryx (*Oryx beatrix*) 2393R-MN



Ostrich 2394R-MN
(*Struthio camelus*)



Oval 2423R-M4



Owlet 1462-WN
(*Megascops*)



Owl 2700 -MN
(Great Gray)
(*Urala cinerea*)



Owlet 1462-MN
(*flammeolus*)



Ovenbird
1460-WN
(*Furnarius
fuliginosus*)



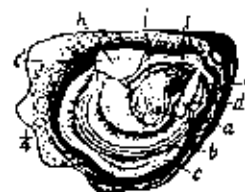
Overshot Wheel
2401R-MN



Ostracoida 2431R-WN
(Male) a a' Antennae;
b Brain; c Compound eye;
h Heart; m Muscle;
r Testis



Oyster Catcher 2426R-W4
(*Haematopus ostralegus*)



Oyster 14720-MN
a Muscle; b Gills; c'c Mantle
d Palpi; e Mouth; h Anus;
i Intestine; l Liver



Ovoid
2424R-M4



Ovary of a Starfish 1754-WN
a Cell wall; b Vitellus;
p Germinal spot



Oyster Crab 1590-W
(*Pinnotheres ostreum*)



Ovum 1468-M

Pp



Paca 2672R-MN



Pagoda 520R-W4



Pallah 2701R-MN



Padlock 2519R-W4
The P's hold the key.



Paedogenesis 1602-WN



Pa'ette 2523R-M4



Pallet 2525R-W4



Palanquin 2855R-M4
"Take me to the P!"



Pall 2524R-WI



Pale 2521R-WI



Palinurus 2217R-W4
(P. guttatus)



Paly 2529R-WI



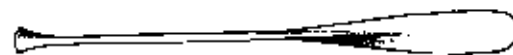
Palette 8090-W



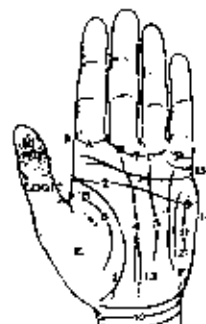
Paletot 2522R-W4



Palette 2523R-W4



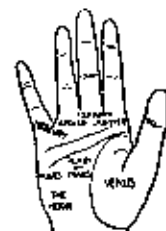
Paddle 6792R-M
A man, a plan, a canal, Panama!



Palmistry 6628R-M
(Lines, Mounds, etc.)



Palm 2499R-MN
(Geonoma gracilis)



Pa'm 4717R-M
(Planetary)



Palmate 2526R-W4



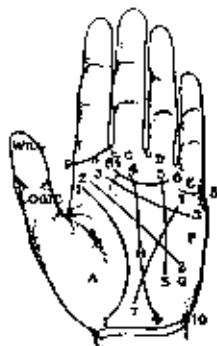
Palmerworm
2723R-MN
(*Ypsolophus pomatellus*)



Digitate 1054R-W4



Panduriform
2531R-W4*



Palmistry 6796R-M
Life, Death, Love & "All of the Above"



Panduriform
2531R-M4



Palmetto 2528R-M4
(*Chamaerops palmetto*)



Palmetto 2528R-W4
(*Sabal palmetto*)



Pangolin 2449R-MN
(*Manis tricuspis*)



Pampas Grass 3771R-MN
(*Gyncrium argenteum*)



Panda 2653R-MN
(*Ailuus fulgens*)



Pansies
(*Viola tricolor*)
1554-WN



Papilionaceous
1677-WN



Panicle
2532R-W4



Panpipes
2530R-W4



Papilionaceous
2755R-MN



Paper Nautilus 2702R-MN



Panther 2718R-M
(*Felis leopardus*)



Palmatisecred
2527-W4



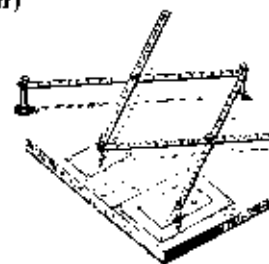
Pappus 2770R-WN
a Plumose; c Capillary;
b Membranaceous; d Awnlike



Papilio (*P. polyxenes*) 1775-WN
a Larva; b Pupa; c Adult



Papyrus 2773R-MN
(*Cyperus papyrus*)



Pantograph 753R-MN



Panorpid 1573-W
(*Panorpa rufescens*)



Parachute
8033-W



Parabola
2534R-W4



Parachute
2535R-W4



Paradise Grackle
2329R-W



Paradise Birds 2774R-MN
a Emerald; b 6 Shafted; c King



Parade Rest
889R-MN

Parallel Lines
2536R-M4



Parallelogram
2533R-W4

Parallel Lines
2536R-W4

*The earth
shall be all paradise.*
-Milton



Parapodium
2453R-MN
b Ligula; d Dorsal
Cirrus; e e' Notopodium
s s' Fascicles of Setae



Parallel Ruler 2537R-W4



Partridge 2554R-MN



Partridge Berry
2503R-MN
(*Mitchella repens*)



Paradoxides
(*P. barilani*)
2451R-MN



Party
2541-WI



Pavior
2545R-M4



Pasha's Standard
2542-W4



& Pavise
2545R-W4



Passant
2906R-WI



Pasque Flower
(*Anemone
nut-alliana*)
2742R-MN



Parting Pulley
1680-WN



Parquetry
2540R-W4



Parnassia
(*P. caroliniana*)
15295-MN



PawPaw 2502-WN
(*Pair, Pare, Pear*)



Papaw 2502R-MN
(*Carica papaya*)



Parte
2544R-WI



Party
2541-WI



Pedatifid
2550R-W4



Peacock 8699-M



Pedate 549R-W4



Pedatifid
255R-M4



Peacock Butterfly 2533R-WN
(*Hamadryas io*)



Pedate 2549R-M4



Passenger Pigeon 2952R-MN
(*Ectopistes migratorius*)



Peacock 8024-W
(*Pavo cristatus*)



Peacock 2546-WN



Pea Weevil
2455R-MN
(*Bruchus pisi*)



Peach-tree Borer 1569-WN
(*Aegeria exitiosa*)



Pear Slug
2799-MN



Pear Slug 2777R-MN



Peduncle
2880-W



Pegasus
(*Pegasus draconis*)
2778R-MN



Peabody Bird 2902-MN
(*Zonotrichia albicollis*)



Pedipalpi 1728-MN
(*Phrynus lunatus*)



Pearl Oyster 2776R-MN



2881-WN
Pediculina Louse
n n Nits
(On human hair)



Peba 2547R-W4*
(*Tatusia novemcincta*)



Peccary
2455R-MN
(*Dicotyles torquatus*)



Pedicellariae 2880-WN



Pectinate 1560-MN
(*Polypodium pectinatum*)



Pecten 2548R-W

P

P



Pelican 2552R-W4
(*Pelecanus onocrotalus*)



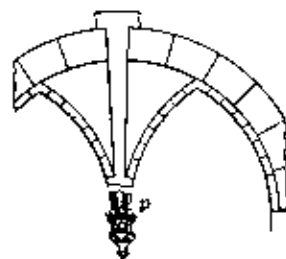
Pencil of Rays 5253R-W4



Pendant Post 2555R-W4



Pegasus



Pendant 6824R-M



Pennants 2495R-MN



Pentameta 265-R-M



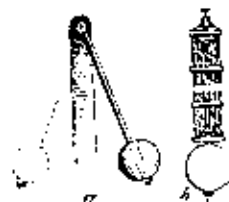
Pegasus M4



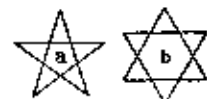
Penninerved 1612-WN



Pentalpha 2977R-WN



Pendulums 2556R-W4
a Common; b Gridiron



Pentacles 7048R-M
a Pentagram



Pennatula 2643R-MN
(*P. aculeata*)



Penguin 8019-W9
(*Spheniscus demersus*)



Pentapetalous 2709R-M4



Pepper 2561R-W



Peregrine Falcon
(*Falco peregrinus*)
1500-WN

P



Penguin 2720R-MN
(*Catarractes demersus*)



Pentremites 1776-W



Peen 1634-WN



Pericarps 8219-W1
e.I poppy capsule
g aristolochia capsule



Pentagon 2557R-W



Pendant 2554R-W4

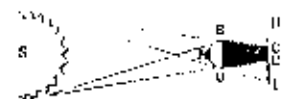


Perfoliate 1558-WN

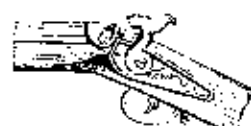
P



Perch 2460R-M



Penumbra 2560R-W



Percussion Lock 2562R-W

PERJUROUS



Petals
1678-WN



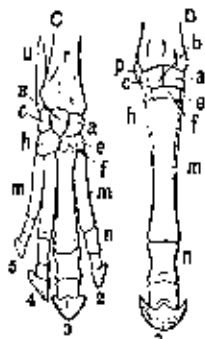
Perigynous
2563R-W4



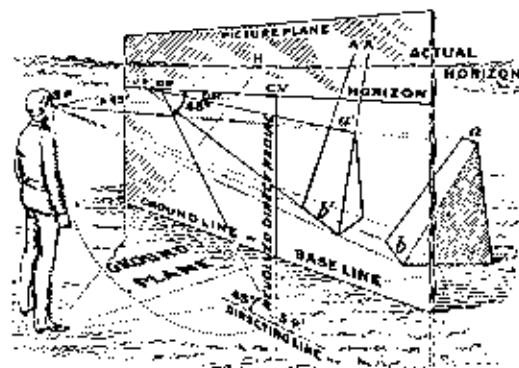
Perlite
1610-WN



Peristome
1742-WN



Perissodactyla 1721-MN
C Manus of Tapir; D Horse



Perspective 6689R-M



Peristome
2564R-W4



Phalanger 2677-MN
(*Belideus sciureus*)



Peewee 1493-WN
(*Sayornis phoebe*)



Pharaoh's Chicken
2678R-MN
(*Neophron percnopterus*)

PERSPECTIVE



Peristome
2822R-MN



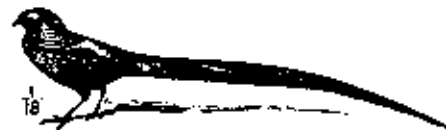
Pheon
2567R-W1



Petiole 1667-MN
b Blade; c Branch



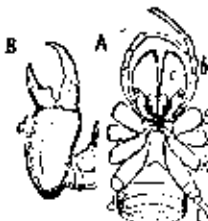
Plurilocular
2591R-W4



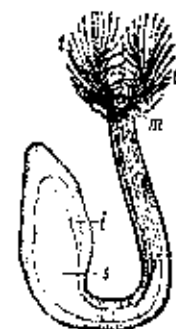
Pheasant (*Thaumalea picta*) 1673-MN



Phacops
(*P. bufo*)
2462R-MN



Phalangoidea 1889-MN
B a Chelicerae
A Underside of male;



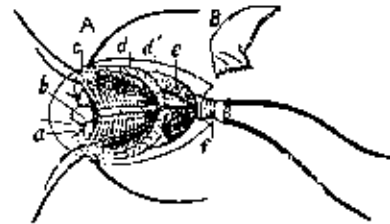
Phoronis
2836R-MN
s Stomach; i Intestine
m Mouth; t Tentacles;



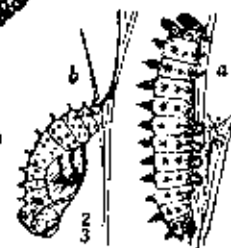
2464R-M
Pholas
(*P. bakeri*)



Phacton
(*Militaea phacton*)
2780-MN



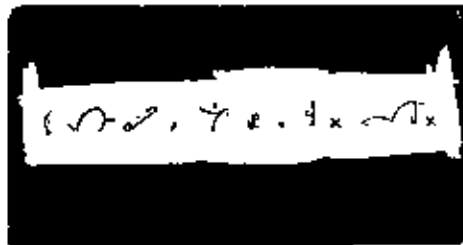
Phyllopora (*Apus cancriformis*)
c d d' Legs; B Mandible 2664R-MN
a a' Antennae; b Labrum; f Abdomen



Phacton 1777-M
a Larva; b Pupa



Phylloxera
2739-MN



Phonography 2695-WN
They also serve who only stand and wait.
Milton



Phyllodia
2744R-MN



Phylacteries
2571R-WN



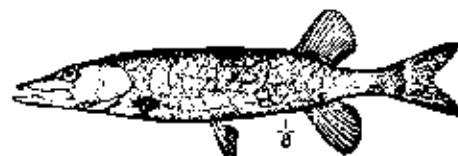
Physalia 1532-M
(*P. aurelia*)



Phrenology 2569-W4

Phrenology 2570R-W4

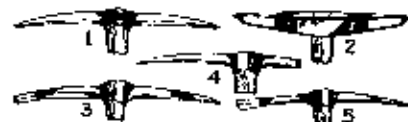
1 Amativeness; 2 Philoprogenitiveness; 3 Concentrativeness;
4 Adhesiveness; 5 Combativeness; 6 Destructiveness; 7 Secretiveness;
8 Acquisitiveness; 9 Constructiveness; 10 Self-esteem; 11 Love of
Approbation; 12 Cautiousness; 13 Benevolence; 14 Veneration;
15 Firmness; 16 Conscientiousness; 17 Hope; 18 Wonder; 20 Wit;
19 Ideality; 21 Imitation; 23 Form; 28 Number; 29 Order;
30 Eventuality; 31 Time; 32 Tune; 34 Comparison; 35 Causality.



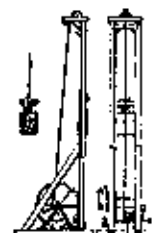
Pickerel (*E. reticulatus*) 2466R-MN



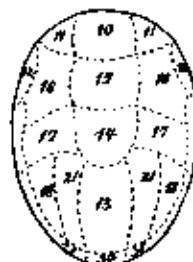
Pilchard 2469-MN
(*Clupea pilchardus*)



Picks 14801-ML
-3 Common forms; 4 Poll; 5 Tamping
1-3 Common forms; 4 Poll; 5 Tamping



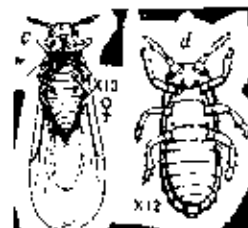
Pile Driver
2574R-W4



Phrenology
2569R-M4



Pileated Woodpecker
(*Ceophloeus pileatus*)



Phylloxera 2738R-WN
(*Phylloxera vastatrix*)



Pigeon 2731R-MN
(*Columba livia*)



Pile
2573R-W1



Pika 2800R-W4
(*Lagomys pusillus*)



Pinnacle
2580R-W4



Pine 2578R-W4
(*Pinus strobus*)



Pineapple
(*Ananassa sativa*)
1559-WN



Pine Siskin 2471-MN
(*Spinus spinus*)



Pink
2579R-W4



Pistil
1740-WN



Pintle
2803R-MN



Pinna (*P. rudis*)
2837R-MN



Pine Weevil
(*Pissodes strobi*)
a Larva; b Pupa
2670R-WN



Pirate Ship! 5594R-M



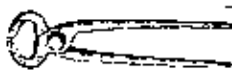
Pitcher Plants
a *Nepenthes*;
b *Sarracenia*
1561-MN



Pinchers
2577R-W4
1 Carpenter's
2 Shoemaker's



Pillory 2575R-W4



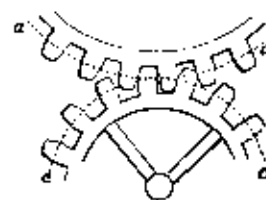
Pinchers 1679-WN



Pillow Block 1613-WN



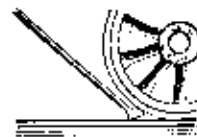
Peccary 1492-WN



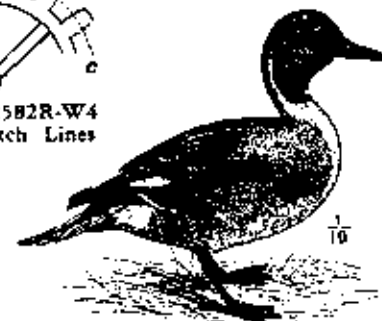
Pitch Lines 2582R-W4
aa & cc Pitch Lines



Paw
2281-WN



Pinch 2576R-W4



Pintail (*Dafila acuta*) 2472R-MN



Pitta 2784R-MN
(*P. coronata*)



Pill Bug
2782R-MN
(*Armadillo vulgaris*)



Pipa (*P. americana*) 2803R-MN



Pipe 8505-M



Piper 2667R-MN



Pipe 332R-M



Pipe 1774R-W4



Pipe 265R-W4



Pipe 8140-W4



Pipe 12R-W4



Bicycle Wheel 1913RR-W



Pipe 14157-M



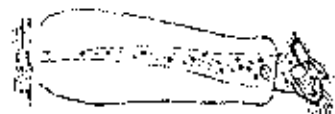
Surreal 2623-W



Anti-Pipe 1981-WN



Portrait of the Artist 1076R-W4



Representational Pipe 2703-MN



Real 1368-W



Pipe Dream 2770-WN



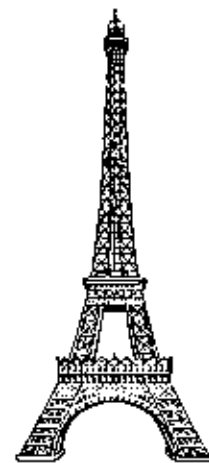
Prude 5697R-M



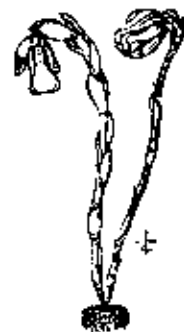
George 9576-ML



Presque Mito 1924RR-W
(Harlequinus carnivalis)



Paris 14157-ML



Pipe 1250-MN



Fine 9398-M



Pipes 2695-M



Content 13773-ML



Folly 3571R-MN



Faith 9641-M

P

P



Pleurotoma
(*P. babylonica*)
4342R-WN



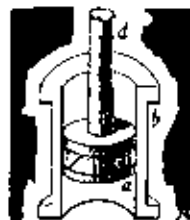
Pleurotoma
2844R-MN



Plantain Tree 2586R-W4
(*Musa paradisiaca*)



Piston 2498-MN



Piston 1550-WN
a Follower; b Cylinder;
c Packing Ring;
d Piston Rod



Plicare Leaf
2588R-W4



Planer Centers 316-WN



Planoblast
1764-W4



Pliers 2589R-W4



Plaice (*Platessa communis*) 2584R-W4



Plant Bug
2751R-MN
(*Lygus lineolaris*)

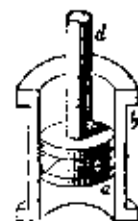


Plow 6154R-M

A Share; B Moldboard; C Landside;
D Jointer; E Gauge wheel; F Beam;
G Clevis; H Handles



Pliers
30029R-M



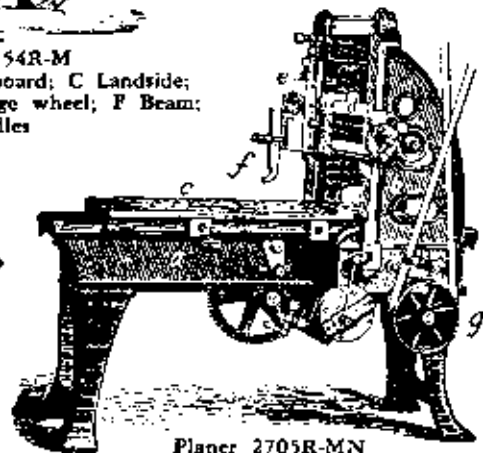
Piston
2497R-MN



Pliers 6898R-M



Plectognathi 2802R-MN
(*Ostracion quadricorne*)



Planer 2705R-MN

a Bed; b Upright; c Table; d Crosshead



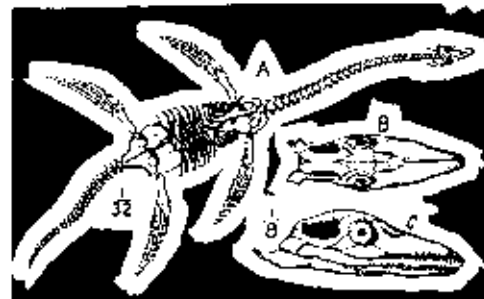
Polystomata
2832R-MN
b Suckers;
m Mouth;
c Hooks
a Stomach;



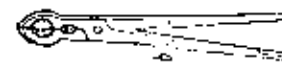
Plane 6895R-M



Pliers 2589R-M4



Plesiosaurus (*P. dolichodeirus*) 1520-WN



Pliers 3002R-MN



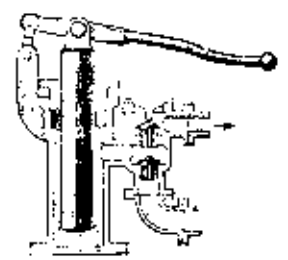
Plover 3037R-MN



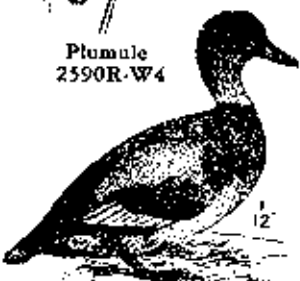
Plumule
2590R-W4



Plum Gouger
2786R-MN
(*Coccoturus scitellaris*)



Plunger Pump 2852R-MN



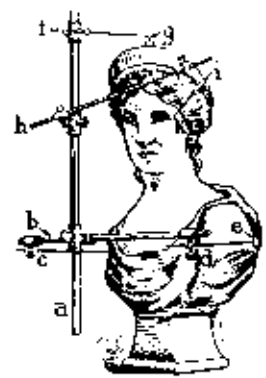
Poachard 2853R-MN
(*Aythya americana*)



Polaris
5574R-M



Pocket Knife 8700-M



Pointing Apparatus
6905R-M



Pluto Monkey
(*Cercopithecus pluto*)
2825R-MN



Poison Ivy
1611-MN



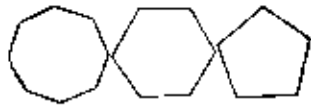
Poison Ivy
(*Rhus toxicodendron*)
2683-WN



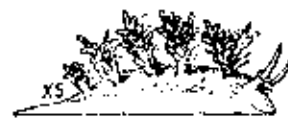
Poison Sumac
(*Rhus venenata*)
2745R-MN



Podura 2645R-MN
(*Podura villosa*)



Polygons 2596R-M4



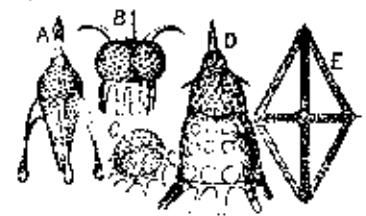
Polybranchia 2734R-MN



Plume Moth
2811R-MN
(*Oxyptilus periscelidactylus*)



Poleax
25R-M4



Polycystina 2735R-MN
A *Rhopalocanium ornatum*; B *Petalaspis diabolica*; C *Halicalyptia fimbriata*; D *Pterocodon campana*; E *Stephanastrum rhombus*



Pocket Knife 2592R-W4
A Scale; B Spring; C Tang of blade; D Kick



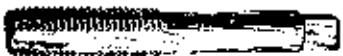
Pod 2593R-W4



Plumb Rule
2851R-MN



Pointer 2478R-MN



Plug Tap 3462R-MN



Pocket Gopher 2477R-MN
(*Geomys bursarius*)



Polecat 2804R-MN
(*Putorius foetidus*)



Pollack (*Pollachius carbonarius*) 1750-WN

POLYPHEME



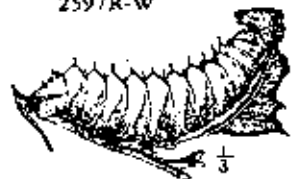
Polypetalous
2597R-W



Polyphemus 2782R-MN
(American Silkworm)



Pommette
2598-W1



Polyphemus 2789R-MN
(*Ictea polyphemus*)



Pompano 2480R-MN
(*Trachynotus carolinus*)



Pomegranate 1748-MN



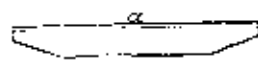
Porch 867R-MN



Pondfish 1575-MN
(*Lepomis gibbosus*)



Poodle 2481R-MN



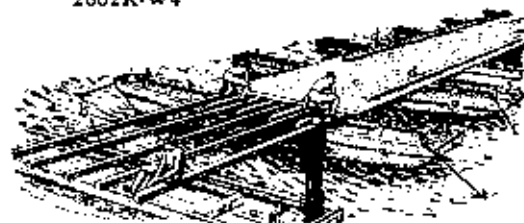
Pontoon (Side view)
2601R-M4



Pontoon Bridge
2602R-W4



Pontoon Bridge 2600R-M4
c pontoons; d Joists; f Cheases



Pontoon Bridge 6912R-M

PONDERSOME



Poppy 2521R-MN
a Flower b Capsule
(*Papaver rhoeas*)



Porcupine 3013R-W4
(*Hystrix cristata*)



Pond Lily
2509R-W



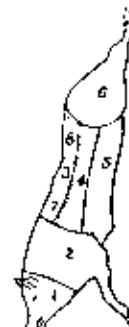
Poppyheads
8142-W



Poplars
(Lombardy)
2603R-W4



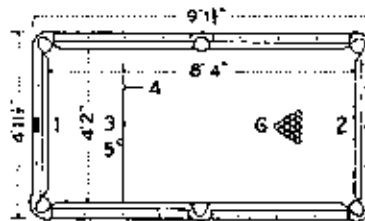
Pond Snail
c *Melantho decisa*
3042R-MN



Pork
6913R-M



Porcupine Grass
(*Stipa spartea*)
4318-MN



Pool Table 18511-M



Porbeagle (*Lamna cornubica*) 2646R-MN



Portable Forge 1406R-W4



Portcrayon
3604R-W4



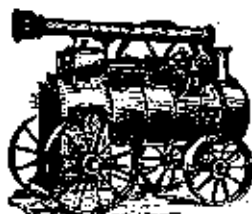
Portcullis
1120R-MN



Portico 7R-W



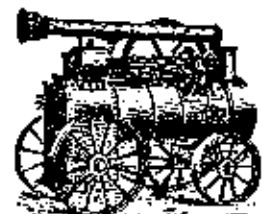
Potent 2826R-WN



Portab'e Steam Engine
3467R-MN



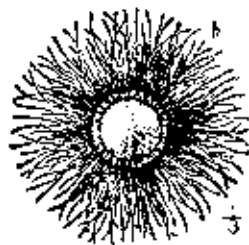
Portcullis 8035-W



Portable Steam Engine
3467RA-M



Potto 1631-WN
(*Perodicticus potto*)



Porpita 2483R-MN
(*P. linnaeana*)



Poyou 2484R-MN
(*Dasybus sexcinctus*)



Pressirosters 2608R-W4
a Plover; b Lapwing;
c Ring Dotterel



Portland Vase
2606R-W4



Potato Beetle 2812R-WN
A *Doryphora decemlineata*;
a Larva; b Pupa; c Adult



Potato Beetle
(*Lema trilineata*)
2805R-MN



Pouter Pigeon
8034-W4



Prairie Chicken 2485R-MN
(*Tympanuchus americanus*)



Prairie Hawk
(*Falco mexicanus*)
1591-WN



Prairie Dog 2679R-WN
(*Cynomys ludovicianus*)



Proteus 2793R-MN
(*Proteus anguinus*)



Priapulacea (*Priapulus pygmaeus*)
a Mouth; b Gill 1763-M



Prawn (*Penaeus setiferus*) 2486R-MN



Prickly Pear
2767R-MN



Present Arms
886R-MN



Prism
2609R-MN



Pruner
Pupa
2711R-MN



Primrose
(*Primula vulgaris*)
2510-MN



Prominent Moth
(*Oedemasa concinna*)
b Imago 1737R-MN
1737R-MN



Prism 4923R-M
(Achromatic Prism)



Promethea Moth 2815R-WN
(*Callosamia promethea*)



Proboscis
(of Annelid)
2806R-MN



Prickly Pear



Prickly Pear
(*Opuntia tuna*)
8016-W



Proboscis
4340R-M



Prominent Moth
a Larva 2816-MN



Ptenoglossa 2861R-WN
b Row of Teeth of Ianthina

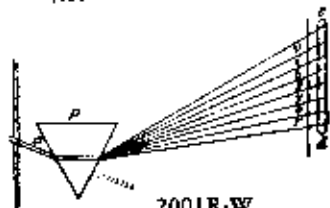


Pruner 2710R-MN
(*Asenum moestum*)

P



Prow 2611R-W4



2001R-W
Prismatic Colors



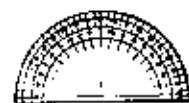
Pseudoneuroptera
2990R-MN (*Procus*)



Prop
1994-WN



Proteles 2818R-MN



Protractor 6923R-M

P



Protozoa 1759-MN



Prosobranch 2833R-MN



Proctis 2814R-WN
(*Proctis americana*)
a Larva; b Imago



Pronghorn 2649R-MN



Protozoa 2840R-WN
(*Monotiga longicollis*)



Pseudopods of *Difflugia*
2979R-MN



Psittaci 2612R-M4
(Macaw)



Psittacid
(Macaw Foot)
2612R-M4



Ptenoglossa
a *Scalaris lineata*
2860R-MN

Pteroceras
(*P. chiragra*)
2847R-MN



Pu'monata
2866R-MN



Pterodactyl 2613R-M4



Pretylosis
1541-WN



Pteropoda
2987R-MN



Puma (*Felis concolor*) 2491R-MN



Punt 2620R-W4



Puffin 2614R-W4
(*Fratercula arctica*)



Pug Mill 2615R-W4



Pug 2490R-MN

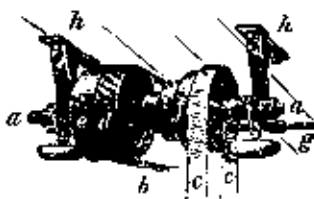
P



Pulmonata
2863R-MN



Pterichthys
(*P. milleri*)
2650R-MN



e, d, f Pulleys 649-MN



Puffer 489R-MN
(*Tetrodon turgidus*)



Pin-tailed Sand Grouse
(*Pterocles albata*)
1675-WN

P



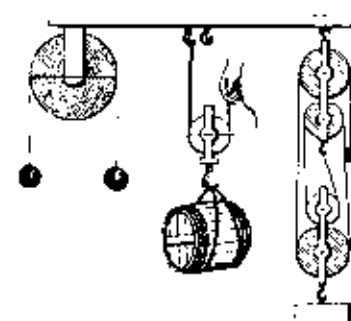
Punch Pliers 2619R-W4



Pupigerous 1639-MN



Pupae 2671R-MN
a Lepidopterous
b Coleopterous



Pulleys 2616R-W4
(Single fixed, Fall & Tackle)



Purse Crab 2622-W4
(*Birgus latro*)



Pythonomorpha
1388-W



Pytula (*P. papyracea*) 2882-WN

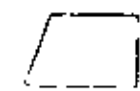


Fyx
2624R-W4

Qq



Quadrants
1840-WN



Quadrilateral
2872R-W1



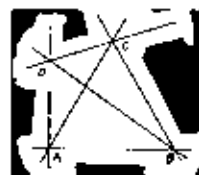
Pyritohedron
1547-WN



Pyralid 2493R-MN
(*Aphomia colonella*)



Pyxidium
2625R-W4



Quadrilateral
(complete)
1840-WN



Quadrumania 3003R-MN
f Fore foot; h Hind foot



Quail 2991R-MN
(*Coturnix communis*)
a Adult; b Young

P

Q



Quail 2991R-MN
(*Callipepla californica*)



Quadrant
(Gunner's)
2870R-W4

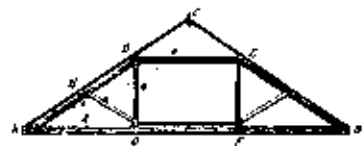


Quagga (*Equus quagga*)
2795R-MN

QUEEQUEG



Quartering
2753R-W4



Queen-Post Roof 1116R-MN
AB Tiebeam; DG EF Queen-Posts;
DE Straining Piece; AD BE Rafters



Quaker 2797R-MN
(*Gedipoda sulphurea*)



Queen Elizabeth
7314R-ML



Queen Conch 3024R-MN
(*Cassis cameo*)



Queen Pigeon 2980R-MN



Quaking Grass
2824R-MN
(*Briza maxima*)



Quintain (Olde) 3910-DI



Quaker Ladies
2823R-MN
(*Honitonia caerulea*)



Quincunx
2877R-W4



Quetzal
(*Pharomachus mocino*)
2992R-MN

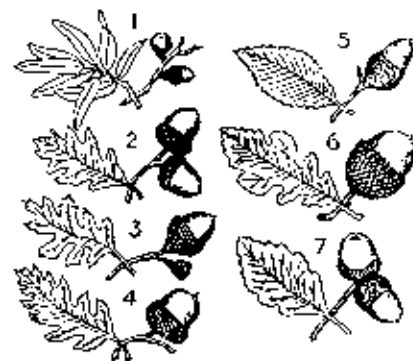


Quincunx
2877R-M4



Quercus 02453-W

Three centuries he grows, and three he stays.
Supreme in state, and in three more decays.
Dryden



Quercus (Oaks) 6333R-M
Leaves and Acorns of Various Quercus
1 Willow Oak (*Q. phellos*); 2 White Oak
(*Q. alba*); 3 Black Oak (*Q. velutina*);
4 Red Oak (*Q. borealis*); 5 Chestnut Oak
(*Q. prinus*); 6 Bur Oak (*Q. macrocarpa*);
7 Swamp White Oak (*Q. bicolor*)



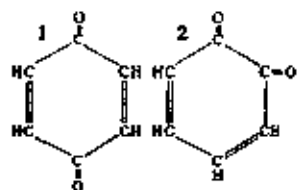
Quenouille
Training
2875R-W4



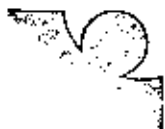
Quick Grass
(*Agropyrum repens*)
4319R-MN



Quince 2876R-M4
(*Cydonia vulgaris*)



Quinone 14859-ML
1 Paraquinone; 2 Onthoquinone



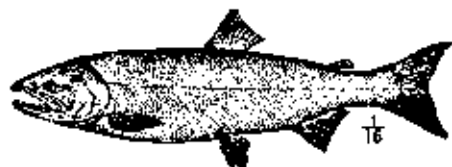
Quirk Molding
3004R-MN



Quinquifoliate
2878R-W4



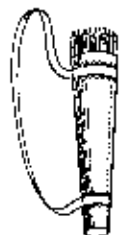
Quinquifoliate
2878R-M4



Quinnat 2798R-MN
(*Oncorhynchus chouicha*)



Quohog 2867R-MN
(*Venus mercenaria*)
f Foot; m Mantle edge; e Excurrent tube; l Lunule; li Ligament
S Siphon; i Incurrent tube; u Umbo



Quiver
9951-ML



Quiver
2879R-W4



Quiver
2879R-M4

Rr



Radius
2885R-W4



Rabbit 1895-WN
(*Lepus cuniculus*)



Radius
2884R-W1



Raccoon 1851-WN
(*Procyon lotor*)



Rack & Pinion 2995R-MN



Radiate
2958R-MN

R



Radiolaria
(*Podocystis schomburgki*)
2971R-MN



Radiolaria 2929R-MN
(w. pseudopodia expanded)
(*Acanthometra mulleri*)



Raceme
2881 W4



Radicle
2959R-MN
b b Cotyledons;
c Plumule; d Rootlets



Radish 1390-W
(*Raphanus sativus*)



Rainbow Trout 1486-MN



Rain 1392-W



Ratchet Drill
2892R-W4



Railroad
Frog
1421R-W4



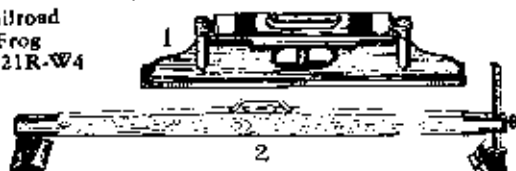
Railroad
Spike
1391RR-W



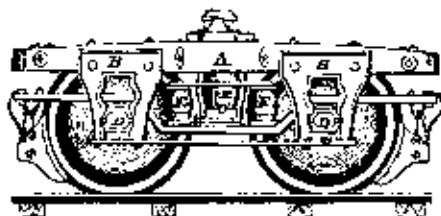
Rail 2931R-WN
(*Rallus elegans*)



Rail 2887R-W4
(*Rallus aquaticus*)



Railroad-track Level 6647R-ML



Railway Truck 3643R-W4



Railroad Stops 5382R-ML



Radula 2930R-MN



Rampant
Regardant
3014R-W1



Ram 3000R-W



Rampant
2889R-W1



Raptorial Birds
Head and Foot;
2890R-W4
aa *Gallus bankiva*;
bb Common Pheasant



Rampant
Gardant
3015R-W1



Raptorial Birds
Head and Foot;
2891R-W4
cc Wild Turkey;
dd Ptarmigan



Radiata 2883R-WN
a Actinia b Coral



Rabbit 3048R-MN



Raguled
2886-W1



Raspberries
(*Rubus idaeus*)
2996R-MN



Ratlings 1820-WN



Ray 3608-W4
(*Raia clavata*)



Ratlines
2956R-MN



Razor Shell
(*Solen ensis*)
3017R-MN

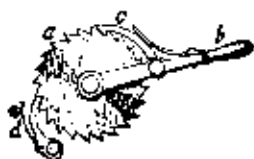
Razorable a.
Razor ready,
fit 2 b shaved



Rhizostomata 3052-MN



Ready 898R-MN



Ratchet Wheel 2994-MN
b Reciprocating Lever;
c Ratchet; d Pawl



Receivers
2896R-W4



Ratel 3021R-MN
(*Mellivora capensis*)



Receptacle
(of Dandelion)
2961R-MN



Ray Flower
2960R-MN



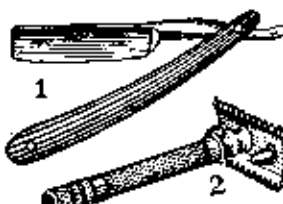
Ratlines
3031-W



Receptacle
(of Seaweed)
2962-MN



Reamer
3608R-M4



Razors 6951R-ML
1 Ordinary (Straight);
2 Safety



Rursaur
2898R-WI



Raven (*Corvus corax*) 2933-MN



Rattlesnake 1862-WN
(*Crotalus adamanteus*)



Rattlesnake
Grass
(*Glyceria
canadensis*)
3026R-MN



Recurviroster 2084R-W4
(*Recurvirostra americana*)



Red Admiral 2934R-MN
(*Vanessa atalanta*)



Redstart 3007R-MN
(*Ruticilla phoeniceus*)



Red Coral 5504R-MN
(*Corallium rubrum*)



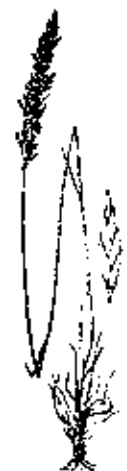
Redstart 2936-WN
(*Setophaga ruticilla*)



Red Blood Corpuscles 257-WN
1 Common Fowl; 2 Ruffed Grouse; 3 Sheep; 4 Human.



Red Spider
(*Tetranychus telarius*)
2982R-MN



Red-topped
Buffalo Grass
4321R-MN



Redwing Blackbird
Redwings 2937-MN
(*Agelaius phoeniceus*)



Redtop 4330-MN
(*Agrostis vulgaris*)



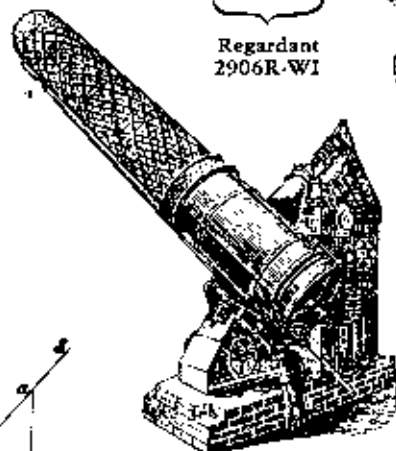
Redia
1793-WN



Regardant
2906R-W1



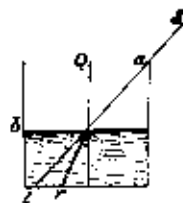
Redoubt 2900R-W4



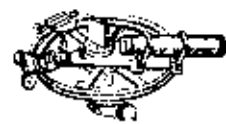
Reflecting Telescope
6393R-MN



Refraction
2905R-W4



Refraction
2904R-W4



Reflecting Circle
2902R-W4



Regma 2965R-MN



Reindeer 2907R-W4
(*Cervus tarandus*)



Reëntering
Polygon
2901R-M4



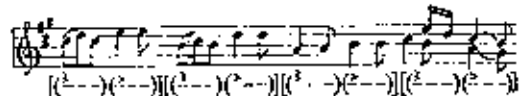
Reindeer 3044R-WN
(*Rangifer tarandus*)

REPEAT

REPEAT



Reticulate
2911R-W4



Refrain "Between the Leaves" 6471R-M



Reticulate
2911R-M4



Repand
2968R-MN



Roebuck (Male & Fawn)
(*Capreolus caprea*) 1872-WN



Retepore 2910R-W4



Tubular retort
3912-MN



Reticularia 2939R-WN



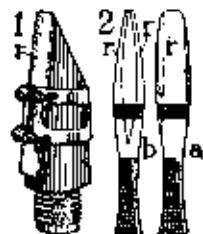
Retort 2912R-W4



Republican Bird
(*Philetarus socius*)
3061R-MN



Regma 1828-WN



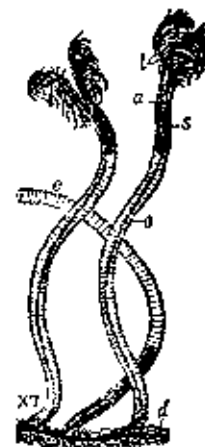
Reeds (r) 6958-ML



Revolver 2997R-MN



Retuse
1828-WN



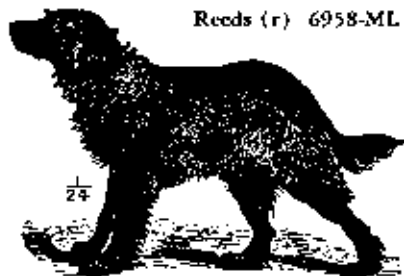
Rhabdopleura 3031R-MN
l Lophophore; s Stomach;
z Intestine; c Contracted
Zooid; d Main Stem



Republican Nest
3062R-MN



Rest on Arms
896R MN



Retriever 3030R-MN



Rhea 3008R-MN
(*Rhea americana*)



Reverse Arms
895R-MN



Rhinopome 1867-WN



Rhesus Monkey 1866-WN
Female & Young
(*Macacus rhesus*)



Rhinoceros Bird
2913R-W4
(*Buceros rhinoceros*)



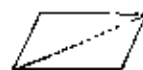
Rhizome 1830-WN
(of Solomon's Seal)
a Stem; bb Scars of stems



Rhipipter 2999-W4
(*Stylops spencei*)



Rhinolophid
3046R-MN
(*Rhinolophus ferrum-equinum*)



Rhomboid
2918R-M4



Rhizopods 2914R-W4
1 *Rotalia globosa*; 2 *Grammostomum phyllodes*; 3 *Frondicularia annularis*; 4 *Triloculina josephina*



Rhizopods 2915R-W4
a *Chrysalidina gradata*;
b *Fiabellina rugosa*;
c *Nummulites nummularia*



Rhinoceros (*R. indicus*) 1842-WN



Rhubarb 3074-M
(*Rheum officinale*)



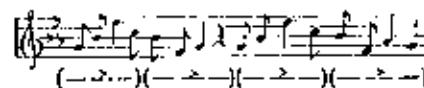
Ribs Removed
6623-ML



Rice Larva
2972R-MN



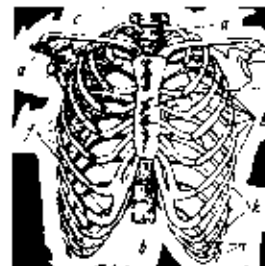
Rietboc 2919R-W4



Ri# 6470R-ML



Rhynchophore 2976R-MN



Ribcage 2469-WN
a 1st Vertebra; b 12th Vertebra;
c Clavicle; d Scapula; e Sternum;
f Sternal Cartilages; g,h,i Ribs
(Sternal, Aternal, Floating)



Rhynchonella
2940R-MN
(*R. psittacea*)



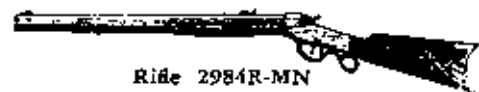
Rice Weevil
2841R-MN



Rhododendron
2969R-MN



Rice 3011R-MN
a Bearded Japanese
b Beardless American



Rife 2984R-MN



Riflebird 3057R-MN
(*Ptiloris paradisea*)



Robin 1929-MN
(*Erythraeus tubecula*)



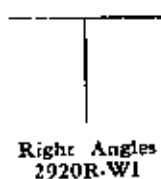
Rocking Crib 9094-ML



River Hog 2915R-MN



Right Shoulder Arms 893R-MN



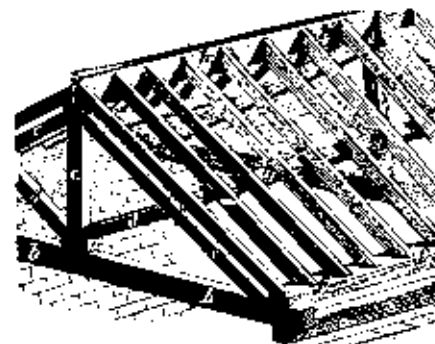
Right Angles 2920R-W1



Rifle 2984R-M



Right Whale (*Balaena mysticetus*) 2942-M



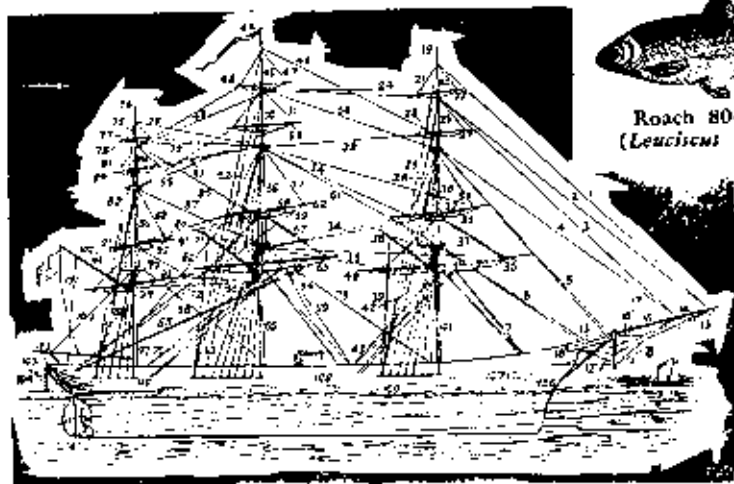
Roof Beams 3077R-WN
aa Wall Plate; bb Tiebeam; c King Post
dd Struts; ee Principal Rafters; ff Pole
Plate; gg Purlin; hh Ridgepiece or pole
ii Common Rafters



Rocket 3036R-MN



Rocket 1890-WN



Rigging of a Ship 2248-W



Roach 8048-MN
(*Leuciscus rutilus*)



Rickshaw 6



shaw 6526R-ML



Rock Eel 1886-MN



Rockaway 2922R-W4



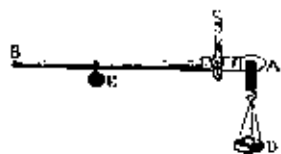
Ring-necked Duck 14936-MN



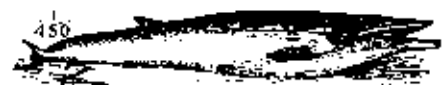
Rodent 1809-MN
(Red Squirrel)



Roller 3058R-MN
(*Coracias indica*)



Roman Balance 222R-W4
AB beam; D scale; E weight



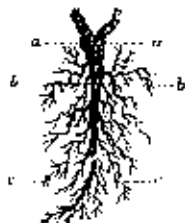
Rotqual Whale 2947R-MN
(*Halainoptera physalus*)



Rooster 6984R-M



Rose Chafer
(*Cetonia curata*)
a Adult; b Larva
1811-MN



Root 8106-W
aa Crown or Head;
bb Rootlets; cc Fibers



Rosemary
2969R-MN



Runcinate
2928R-W4



Rucervine Antler
a Brow Tynce;
b Tres-tynce;
c Royal Tynce
3072R-MN



Rove Beetle
2975R-W4



Rowlock
2041-W



Rose Beetle
1917-MN



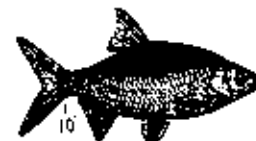
Rowlock
7000R-ML



Rudder 3255-MN
a Tiller; b Rudder



Rotate Corolla
2924R-W4

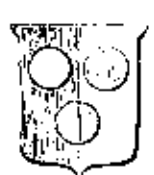


Rudd 14930-MN

R



Rostrifera
(*Aparrhais occidentalis*)
2985R-MN



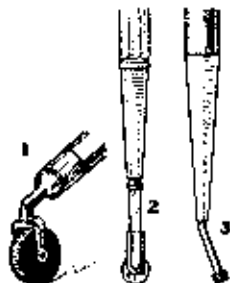
Roundels
2925R-W4



Rotary Pump
1887-WN



Runner (of Strawberry) 2970-MN



Roulette 6571R-M



Rupicola 3058R-MN
(Cock of the Rock)



Rubythroated Hummingbird
(*Trochilus colubris*) 3070-MN
a Male; b Female



Ruff 3012R-WN
(*Pavoncella pugnax*)



Rutilian 1910-WN
(*Pelidnota punctata*)



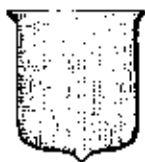
Rusine Antler
3072R-MN
a Brow Tynce;
b Tres-tynce;
c Royal Tynce



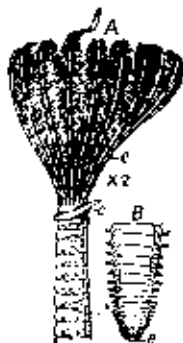
Rye Grass
4822R-MN

R

Ss



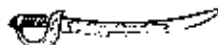
Sable
4413R-M4



Sabella 3403R-MN
(*S. microphthalmus*)
A Branchiae; c Ocelli;
c Collar; B Caudal
Segments; e Anus



Sable 3081R-MN
(*Mustella zibellina*)



Saber 8064-W



Saber 3136-W4



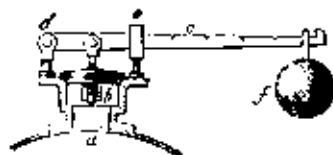
Sabot
2042-WN



Sack Bearers 3082-M
a Imago; b Larva;
c Larva & Sack



Safety
Tube
3122R-MN



Safety Valve 3258R-MN
a Boiler; b Valve; c Lever; d Fulcrum;
e Guide; f Weight to hold valve down



Sago Palm 3257R-MN
(*Metroxylon rumbii*)



Saddleback 1933-WN
(*Empretia stimulea*)



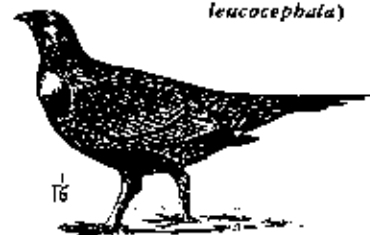
Sagittate 3123R-MN



Saki 3314R-M
(*Ptilocercia leucocephala*)



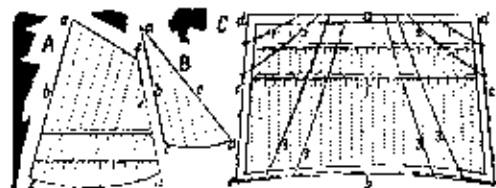
Safety Chain
7259R-M



Sage Cock 3085R-MN
(*Centrocercus urophasianus*)



Safety Switch 8012-W4



A Fore-and-aft Sail: a Peak; b Leech;
c Clew; d Tack; e Luff; f Nock.
B Triangular Sail: a-e (same as in A)
C Square Sail: a Head; b Foot; cc Leeches;
dd Headearing Cringles; ee Clews; f Reef-
band; 11, 22 Leech Lines; 3333 Buntlines.



Salade
3142R-WI



Salient
3141R-WI



Sailor's Choice 3089R-MN
(*Diplodus rhomboides*)



Sanderling 3095R-MN
(*Calidris arenaria*)



Saltire 3143-W4



Samara 1973-WN
a Double samara Maple;



Samara 3124R-MN
b Wing-margined samara of White Elm



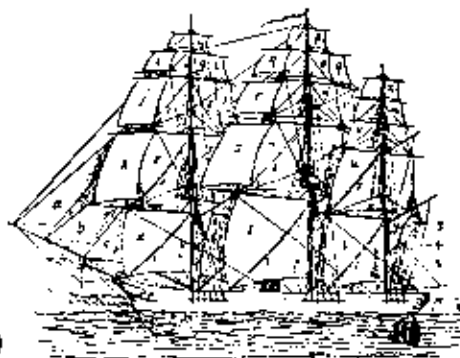
Sandals 3139-W4



Sandpiper 30968R-MN
(*Actitis macularia*)



Sarigou 3087R-MN
(*Didelphys opossum*)



Sails of a Ship 3323R-MN
a Flying Jib; b Jib; c-h Fore Sails (c Topmast; d Foresail; e Topsail; f Topgallant; g Royal; h Skysail) i-k Fore Studding Sails l-n Main Sails; q,r,s Main Studding Sails t-x Mizzen Sails; y Spanker



Sanguinaria (*S. canadensis*) 31205R-M



Saltigrade 3092R-MN



Sails M4



Sarcoprid (*Sarcoptes scabiei*) 3459R-MN



Salmon (*Salmo solar*) 3091R-MN



Sap Sucker (Yellow-bellied) 3259R-M

S



Sapajou (*Cebus capucinus*) 3099R-M



Sardine 3100R-MN



Sarmenose 3140R-W4



Sand Wasp 3098R-MN
(*Spbex ichneumonca*)



Sand Dollar 1943-WN
(*Echinarachnius parma*)



Sarmenose 8114-W



Sappho 3258R-MN

S



Sasin 3101R-MN



Savoy 3128R-MN
(*Brassica oleracea*)



Saw-whet Owl
(*Nyctale acadica*)
3105R-MN



Sauba Ant
3405R-M



Satyr 3102R-MN
(*Cercyonis alope*)



Sawfly 3104R-M
(*Lophyrus abietis*)



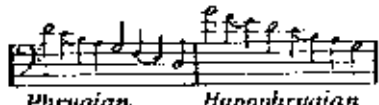
Saxophone
2205-WN



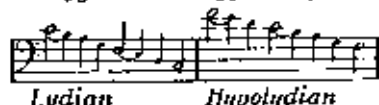
Saturn 1976-WN



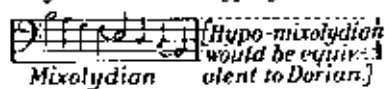
Dorian Hypodorian



Phrygian Hypophrygian



Lydian Hypolydian



Mixolydian [Hypo-mixolydian would be equivalent to Dorian.]

Score of Modes 6729R-ML



Saxicava
(*S. arctica*)
i.e Siphon tubes;
f Foot
3106R-MN



Sauropoda Hind
Leg & Pelvis
15324-M



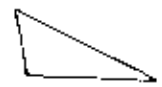
Saturn Devouring
His Son 57 1/6 X 32 1/8"
Goya-1823



Scattered
3148R-W4



Scepter
3149R-W4



Scalene Triangle
3145R-MN



Scalpel
1979-WN

S



Scaphite
1960-MN



Saw Teeth 2899R-W



Scalaria
(*S. pourtalesii*)
2170-WN



Scissors 9453-M



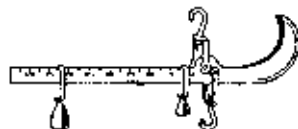
Scape
3146R-W4



Scarab 1962-MN
(*Scarabaeus sacer*)



Saury (*Scombersox saurus*) 14950-MN



Scalebeam 14972-M



Scaphopoda 1961-W
(*Dentalium agile*)
f Foot; c Cirri;
m Mantle; s Siphon



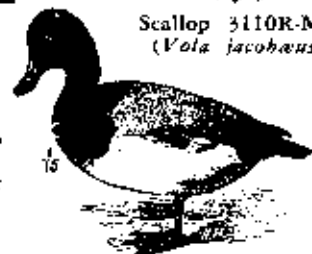
Scallop 3110R-MN
(*Vola jacobaeus*)



Scissor-tail
14960-MN



Scoter 3410R-WN
(*Oidemia americana*)



Scaup Duck 3114R-M
(*Aythya marila*)



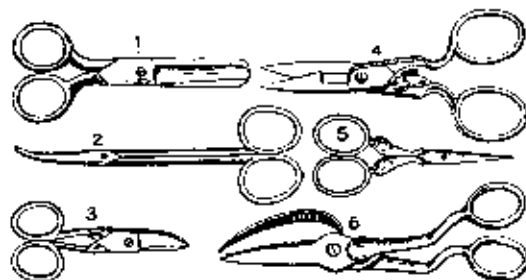
Screech Owl
3317R-MN
(*Scops asio*)



Scup
3121-MN
(*Stenotomus chrysops*)



Schooner 4358R-W



Scissors 7033R-ML
1 Pocket; 2 Manicure; 3 Nail; 4 Button-hole; 5 Embroidery; 6 Lampwick



Scutellate
2049-WN



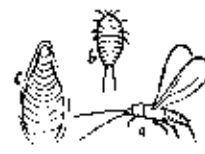
Screw 1992-WN
a Male
b Female



Scopias 4078R-MN



Scolopendra 3118R-M
a Antenna; b Maxillary palpus; c Fangs; e Legs



Scale Insect
3109R-MN



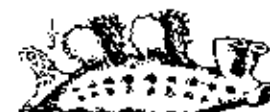
Scutate
3153R-W4



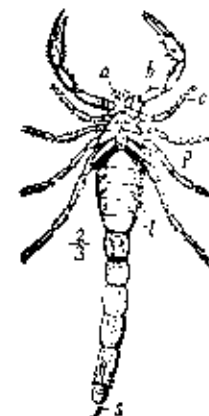
Schizopoda (*Mysis mixta*) 3115R-MN



Scorpionid
3205R-WN



Scyllaea 3411R-MN
(*Scyllaea edwardsii*)



Scorpion 3408R-MN
a Falces; b Palpi; c Legs
p Pecten; f Strigmaria; s Scinger



Scorpion 8135-W4
(*Androctonus occitanus*)



Screw Propeller 2203-WN



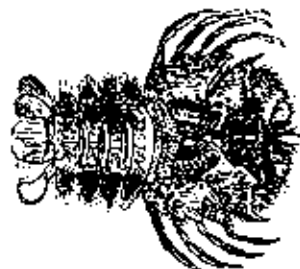
Sculptured Tortoise 2948-MN



Screen
2173-WN



Screw Pine 3151R-W4



Scyllarian 3154-W4
(*Ibacus peronii*)



Sea Bass (*Serranus atrarius*) 199R-WN



Sea Fan 3271R-MN
(*Gorgonia flabellum*)



Seal 8021-W4
(*Calocephalus vitulinus*)



Sea Cucumber
3269-MN
(*Pentacta frondosa*)



Sea Horse
7045-W



Sea Otter (*Enhydra lutris*) 3271R-MN



Sea Orange 2004-MN
(*Lophothuria fabricii*)



Sea Leopard 3460R-MN
(*Ogmorhinus leptonyx*)



Sea Grapes
(Loligo eggs)
3473R-MN



Sea Dragon 4464R-M



Sea Lion 3272-MN
(*Zalophus californianus*)



Sea Elephant 3513R-MN
(*Macrorhinus proboscideus*)



Seal (*Phoca vitulina*) 3301R-MN



Sea Anemone 26R-MN
(*Metridium dianthus*)



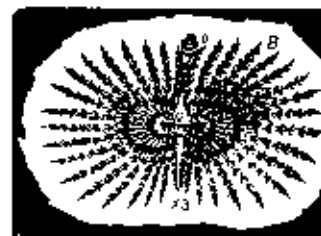
Sea Devil (*Manta birostris*) 2000-W4
b Under side of head, showing gills(c)



Sea Crawfish 3155R-W4
(*Palinurus vulgaris*)

Serval (*Felis serval*) 2015-WNSea Raven 3302R-MN
(*Hemirhamphus americanus*)

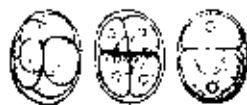
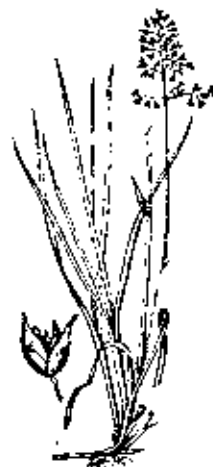
Sedan 3510R-WN

Sejan
3391R-MISecretary Bird 3420R-MN
(*Gypogonus serpentarius*)Sea Mouse 3564-MN
(*Aphrodite aculeata*)Secure Arms
3298R-MNSea Peach 2176-WN
(*Cynthia pyriformis*)Serpula 2195-WN
B cephalic Appendages;
o Operculum

See-saw 3159R-W4

Segment of
Circle 3160-W4

Sedan 3022-W4

Second
3237R-MNSea Urchin 3278R-MN
(*Strongylocentrotus drobachiensis*)Section of Dashpot
227R-MSegmentation of Ovum
3525R-MNSea Snake 3277R-MN
(*Pelamis bicolor*)

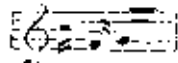
Seneca Grass 4325R-MN

Serving Mallet 2052-WN
a Serving Mallet; b In use

Second Lieutenant 4448-W



Ship's Compass
1731R-W



Semiquavers
5520R-M



Shores 3176R-W4
(Supporting ship)



Sewelle 3514R-MN
(*Haplodon rufus*)



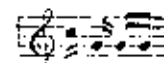
Shiner 3291R-MN
(*Notemigonus
crysoleucas*)



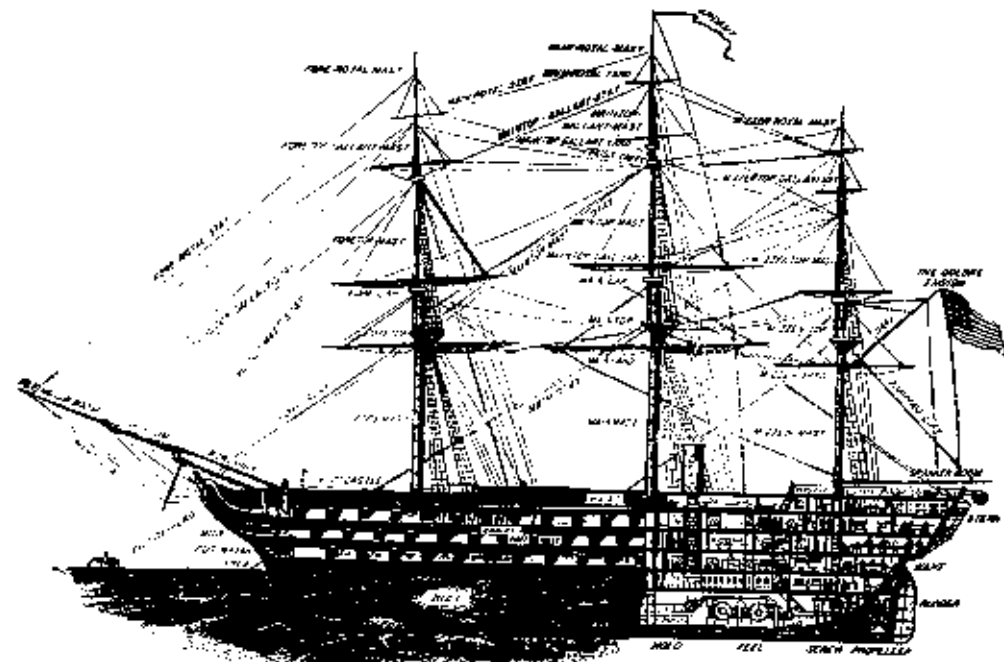
Shamrocks 3295R-MN



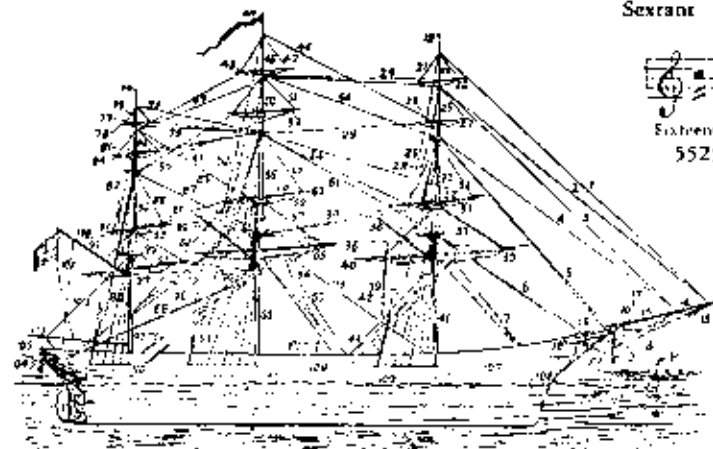
Sextant 3566-WN



Sixteenth Notes
5525R-M



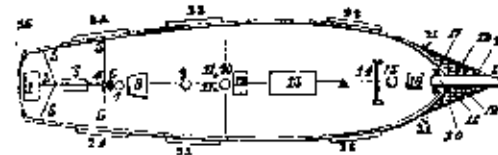
Ship 8073-W4



Ship, Showing Spars and Rigging 3519R-MN



Semaphore
3319-MN



Ship, Deck Plan of 3425R-W4
1 Roundhouse; 2 Tiller; 3 Grating; 4 Wheel;
5 Wheel Chains; 6 Binnacle; 7 Mizzenmast; 8
Skylight; 9 Capstan; 10 Mainmast; 11 Pumps;
12 Caboose; 13,16 Hatchways; 14 Windlass;
15 Foremast; 17 Bits; 18 Bowsprit



Shark 3284R-MN
(*Carcharhinus obscurus*)



Shark (Man-eating) 3285R-MN
(*Carcharodon carcharias*)



Shaddock 3169R-W4



Septicidal
3162-W4



Serpent
3165-W4



Serrate
3166-W4



Shell
2054-WN



Seprifragal
3163-W4



Shearwater 3286R-MN
(*Puffinus borealis*)



Setter (English) 3526R-MN



3168R-W4
Setiform



Sequoia 3306R-MN
(*Sequoia gigantea*)



Sequoia 2037-WN



Septum
3164-W4



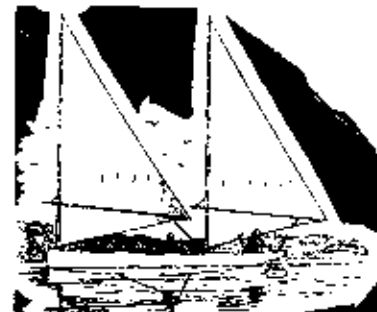
Sessile 3167R-W4



Sheep's Fescue
4324R-MN
(*Festuca ovina*)



Shears 3296R-WN



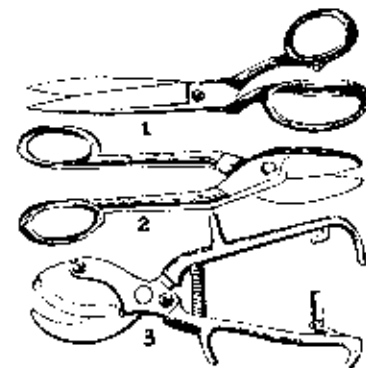
Sharpie 2039-WN



Sepals 3161-W4



Seed Weevil
(*Apion sayi*)
3279R-MN



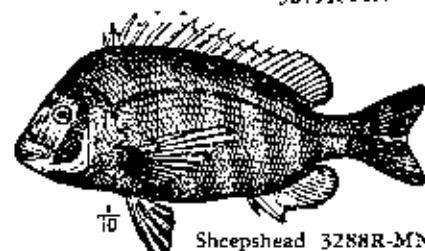
Shears 7074R-MI
1 Tailor's; 2 Tinner's; 3 Pruning



Seed 3299R-MN
A,B Anaropous seeds
of Violet; c Cotyledons;



Seeds 3299R-MN
ca Caulicle; h Hilum;
e Endosperm; r Raphe



Sheepshead 3288R-MN
(*Archosargus probatocephalus*)



Shittah Tree
(*Acacia seyal*)
3520R-MN



Sheep Tick
3289R-MN
(*Melophagus ovinus*)



Shuttlecock
3455-MN



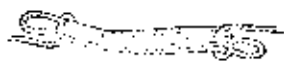
Shrew Mole 3528R-MN
(*Scalops aquaticus*)



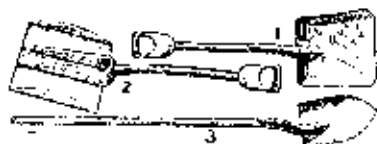
Shotgun 6834R-M
1 Pistol Grip; 2 Triggers;
3.3 Hammers; 4 Top Lever



Shepherd with Crook
3171R-W4



Sheepshank 2032-MN



Shovels 7256R-W1



Shuttle Cell 2211-WN
(*Radius volva*)



(*Sorex platyrhinus*)
Shrew 3515R-MN



Shuttlecock
3455-MN



Shrimp 3770R-MN
(*Crangon vulgaris*)



Shrapnel
2195-WN



Sidesaddle
Flower
1975-MN



Shrike 3824R-MN
(*Lanius ludovicianus*)



Sieve
3180-W4



Silique
3183R-W4



Silicles
2056-MN



Sicklebill 2258-MN
(*Eutoxeres aquila*)



Silhouette
3182R-W4



Silhouette
3182R-M4



Sickle
3542R-MN



Silkworm (*Bombyx mori*)
3326R-MN a. Larva; b. Pupa;
c. Female; d. Male



Strainer
325R-W4



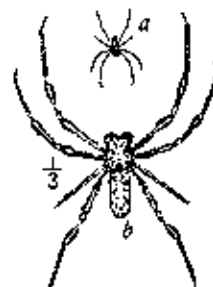
Shuttlecock
3455-MN



Shrouds
8031-W



Sigillaria 2213-WN
a. *S. graeseri*; b. *S. reticulata*



Silk Spider 3325R-W
(*Nephila plumipes*)
a. Male; b. Female



Silverspot 3531R-MN
(*Speyeria idalia*)



Siphophora (*Agalma*) 2434-WN
a Float; bb Nectocalyces; c Stem; e tentacles



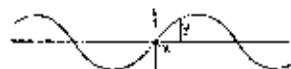
Sirius 570BR-ML



Sinistral 2061-WN
(*Fulgur perversus*)



Siliceoidea 2259-WN b. Spicules
(*Trichostemma hemisphaericum*)



Sine Wave 3398-WN
x Abscissa; y Ordinate



Siliceoidea 2259-MN



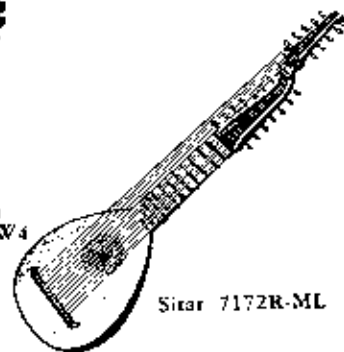
Sister Hooks
3339R-MN



Sirenian 3337R-MN
(Skeleton of Manatee)



Sistrum
3135R-W4



Sitar 7172R-ML



Skeleton of Elephant 3188-W4



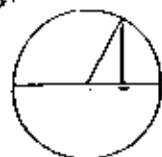
Siva 3186R-W4



Six Masted Schooner
7061R-M



Silaroid (*Loricaria setigera*) 2060-WN



Sine 3184R-W4



Siphon
3331R-MN



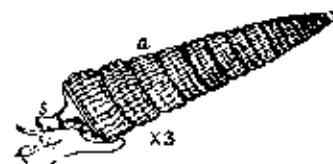
Sinuate 2062-MN



Silicoid (*Aspreo octocirribis*) 2059-MN



Siphonariid
2272-WN



Siphonobranchiate 3332R-MN
(*Cerithiopsis emersonii*)

SKELETONS



Skeleton of Ichthyosaurus 1826R-W4



Skate 2215-MN
(*Raia levis*)



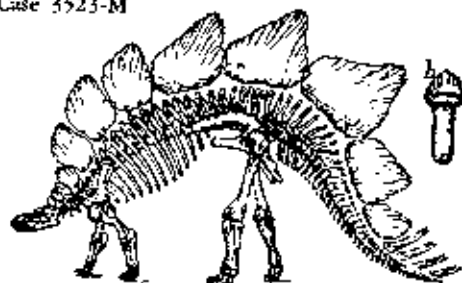
Skater 3394-MN
(*Gerris paludum*)



Skate Egg Case 3523-M



Skew Gearing
2075-WN



Skeleton of Stegosaurus 4848R-M



Skulls in the Closet
1363R-W4



Sling
319R-W4



Skimmer (*Rhynchops nigra*)
1965-MN



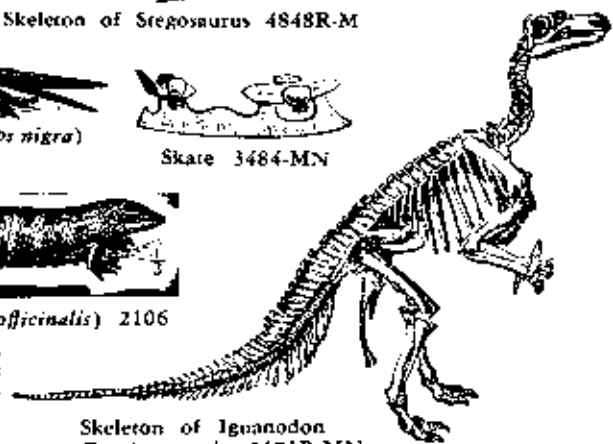
Skate 3484-MN



Skink (*Scincus officinalis*) 2106



Skid 6625R-M

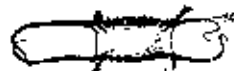


Skeleton of Iguanodon
Bernissartensis 1171R-MN

SLINGS



Skull of Ceratosaurus (*C. nasicornis*) 321-WN



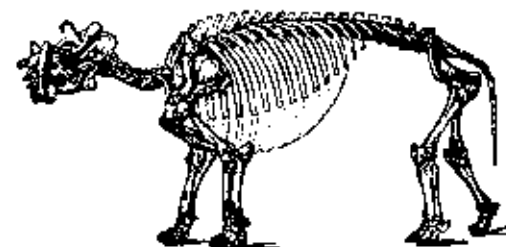
Sea Purse 3523-M



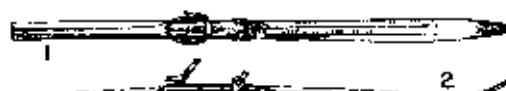
Skunk 3395R-MN
(*Mephitis mephitis*)



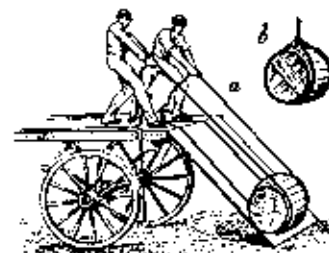
Skipper 3343R-MN
(*Polites peckius*)



Skeleton of Dinoceras 4385R-MN



Skis 7106R-M



Slinging Barrels 6802R-ML



Skunk Porpoise 2078-MN
(*Lagenorhynchus acutus*)



Skylark 8011-W4
(*Alauda arvensis*)



Sleigh 3533R-WN



Sloop 2951-WN



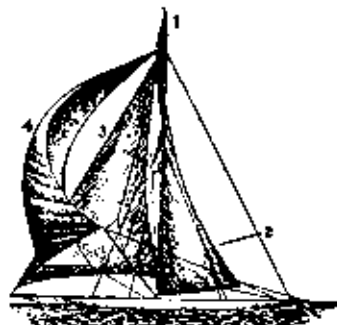
Smelt (*Osmerus mordax*) 3347R-MN



Sloop 3426-W4



Snail 3535R-MN
(*Macrocyclus concava*)



Sloop-rigged Yacht 7288R-M
1 Club Topsail; 2 Mainsail;
3 Balloon Jib; 4 Spinnaker



Slug 8029-W4



Sloop 3426B-W4



Slug (*Limax agrestis*) 3517R-MN



3192R-W4
Sluice Gate



Sloth Bear 3567R-MN
(*Ursus labiatus*)



Soap Beetle
(*Adelocera
obtecta*)
3396R-M



Sloth 3981R-MN
(*Chalopus hoffmanni*)



Snew 3534R-MN
(*Mergus albellus*)



Snatch Block
3195R-W4



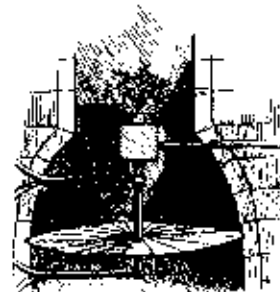
Snap Block
27027R-W4



Snakebird 3568R-MN
(*Anhinga anhinga*)



Snipe 3350R-MN
(*Gallinago delicata*)



Smokejack 3192R-W4



Snowcap 2273-MN
(*Microchara
albocoronata*)



Snapping Turtle? 8036-W



Snow Gnat 3536-M
(*Chionea valga*)



Small Reed Grass
4325R-MN



Sloth 3981R-WN
(*Chalopus didactylus*)



Snout Beetle 3457R-MN
(*Rhynchænus strabi*)



Snowdrop
3353R-MN



Solarium 2298-WN



Snowy Owl 3355-MN
(*Nyctea nivea*)



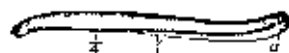
Soldier Bug 3397R-M
b. Proboscis
(*Harpactor cinctus*)



Solenodon (*S. paradoxus*) 2091-WN



Snowflakes 3195R-W4



Solengastra 2267-MN a. Mouth
(*Pronemoma slateri*)



Solenoid
3199R-W4



Social Ascidian
3569R-MN
b Stolon; c Mouth; f Atrium;
d Cloacal Orifice; l Gill;
u Anus; v Genital duct
(*Perophora viridis*)



Soldier Beetle
3357R-MN



Solifuge 3675R-MN
(*Galodes araneoides*)



Song Sparrow 3414R-MN
(*Melospiza melodia*)



Sole 3545R-MN
(*Solea vulgaris*)



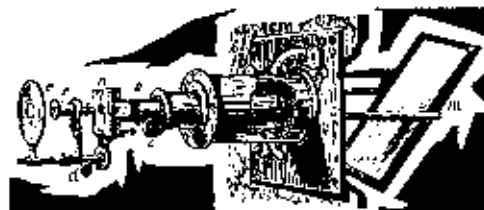
Song Thrush 3359R-MN
(*Turdus musicus*)



S. B. Larva
3358R-MN



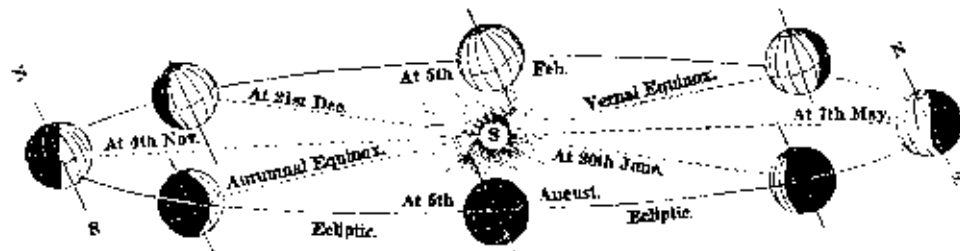
Snowshoe 3354R-MN



Solar Microscope 2266-WN



Solar Protuberances and Sun Spots 2943-WN



Solstices, Equinoxes, Etcetera WN



Sora 3518R-WN
(*Porzana carolina*)



Sonometer 3181R-W4
AD Wire; B Bridge; P Weights



Soursop 3202R-W



Spangled Coquette 3548-MN
(*Lophornis vagans*)



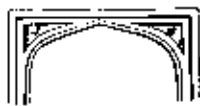
Sperricorn 2051-MN



Sparoid (*Pomadasys*) 2221R-MN



Sparrow Hawk 2100-WN
(*Accipiter nisus*)



Spandrel 3203R-W4



Son-of-Moon Fish 2214-W4



Sperm-whale Porpoise
(*Hyperoodon bidens*)
2109-WN



Sperm Whale 2108-WN
(*Physeter macrocephalus*)



Spadix 2102-MN
a Spathe;
c Flower revealed



Spanworm 3541R-MN
(*Nematocampa filamentaria*)



Sparrow 3362A-MN
(*Passer domesticus*)



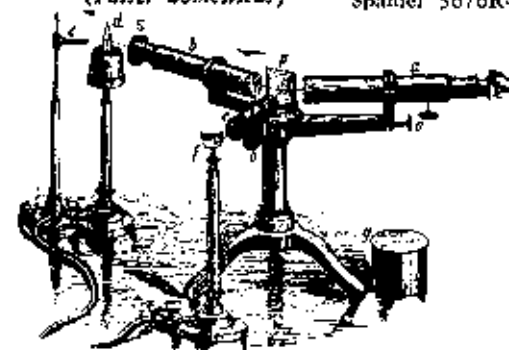
Spaniel 3676R-MN



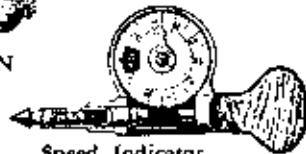
Spectacles 94107



Soredia 3201R-W4



Spectroscope 3674R-WN
P Prism; a Telescope; b Collimator; c Tube w/
micrometer; e Substance holder; f Flame g Prism cover



Speed Indicator 3368R-M



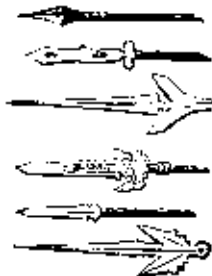
Sporangoid 3365R-MN
(*Brissoptis lysiferia*)



Spades 15070-ML
1 Garden; 2 Posthole; 3 Peat; 4 Drain



Spatulate 3204R W9



Spearheads 3205R-MN



Spinning Wheel 8086-W



Spike 3377-MN



Sphinx (The) 5364-ML



Sphinx 3206-M4



Sphinx Larva 3375R-MN
(*Sphinx gordius*)



Spirula 2117-WN
(Showing internal shell)



Spirula 3427R-MN



Spit 15104-MN



Spit 3210R-W



Spindle Shell 2217-WN
(*Rostellaria fustus*)



Spoon Oar 2441R-MN



Spiral of Archimedes 2278-WN



Spire 3209R-W4



Spider Monkey (*Ateles belzebuth*) 3379R-MN



Spiderweb 1640-W4



Splayfoot 228-MN



Spinnerets 3571R-MN



Spirifer 2280-WN



Spool 9583-M



Spiral Gears 32089R-W4



Spider 3539R-WN
(*Pholcus phalangioides*)



Spline 3213R-WN

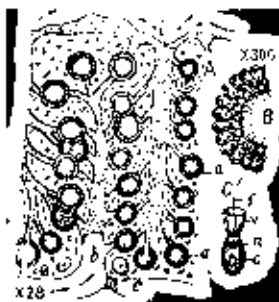
S



Spiralooids 2316-WN



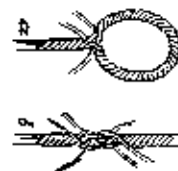
Spinning Wheel 2186-WN



Spongie 2302-WN



Spoonbill 3382-MN
(*Platalea leucorodia*)



Splices 3211-WN



Spitz Dog 3677R-MN

S



Springs 2124-WN
a Spiral; b Coil;
c Elliptic; d Leaf



Spring
2690-M



Spread Eagle
3213R-WI



Sporangium
2121-WN



Stag-horn Fern 2135-MN



Stag Beetle
(*Lucanus dama*)
3511R-MN



Squash Bug
(*Coreus tristis*)
3400R-MN



Springbok 3573R-MN
(*Gazella euchoire*)



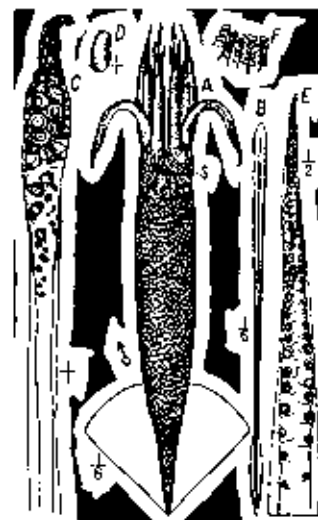
Spur Gear
2126-WN



Spurs 3216-W4



Spurs of Planets 4040-M



Squid 2312-WN
(*Ommastrephes illecebrosus*)
s Sucker; B Pen; C Tentacular
arm; D Sucker Rim; E Sessile
arm; F Teeth



Squamipen 3401R-WN
(*Chaetodon striatus*)



Squash 3399R-MN
a Winter; b Hubbard



Squirrel Monkey
(*Callithrix
sciurea*)
3577R-MN



Squirrel-tail
Grass 4326-MN



Springtail
(*Degeeria
flavocincta*)
3553R-MN



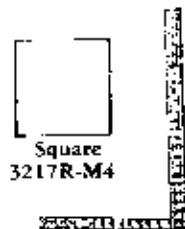
Squamose
3399R-MN



Spruce 3214R-W4
(*Picea excelsa*)



Squarrose 3218R-W4



Square
3217R-M4

Square
3575R-MN



Squirrel Gun 4735R-M



Squirrel 3576-MN
(*Sciurus cinereus*)

S

S



Stamens 2138-MN
a Petals; b Stamens; c Ovary; d Style; e Stigma



Stalk Borer (Imago) 3430R-MN
(*Gortyna nitela*)



Standard 3220R-W4



Standard 3219-W4



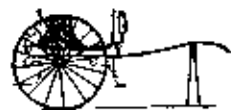
Starfish (*Asterias vulgaris*) 3771R-MN



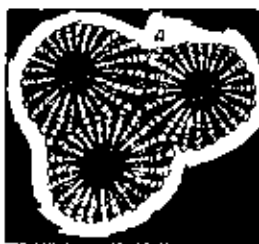
Standards 4019R-M



Stapelia 3432R-MN
(*Stapelia asterias*)



Stanhope 3221R-M4



Star Coral 2323-WN
(*Orbicella annularis*)



Standing Cup 1135-MN



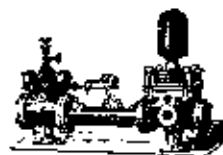
Star Polygons 2220-WN



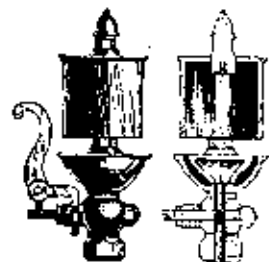
Starling 3470R-MN
(*Sturnus vulgaris*)



Staroblast 4040R-W



Steam Pump 3436R-MN



Steam Whistle 3663R-WN



Steam Engine 2145-MN



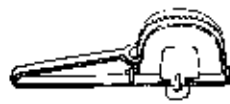
Steam Gauge 3468R-MN



Steam Gauge 2200-WN



Steam Boiler 2198-WN
a Chimney; b Man hole; c Dome; c Steam Pipe; f Feed Pipe; g Safety valve; h Water gauge



Steel Trap 3224R-W4



Stay Bolt 3435R-M



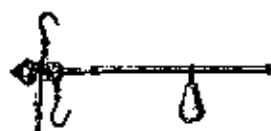
Stalactites 2432-WN
(In Wyandotte Cave, IN)



Spooky Cave 8023-W4



Stalagmites 2431-WN
(In Marengo Cave, IN)



Steelyard 3438R-MN



Stencil 3226-W4



Stern 1993-W



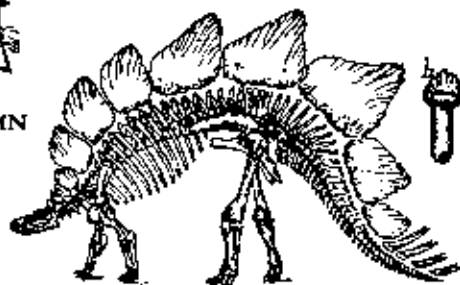
Stereography
a Tetrahedron;
b Hexahedron;
c Octahedron;
d Dodecahedron;
e Icosahedron
3227-W4



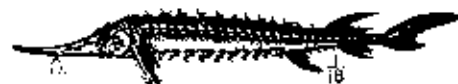
Stilts
3662R-MN



Stellate
3225R-W4



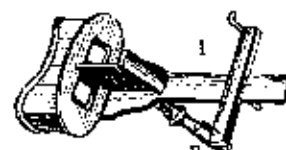
Stegosaurus 4848R-M



Sterlet (*Acipenser ruthenus*) 3439R-MN



Stereoscopic Camera
869R-M



Stereoscope 7139R-M



Stethoscope
3440R-MN



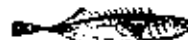
Stiletto
3228R-WN



Stilt 3443R-MN
(*Himantopus melanopterus*)



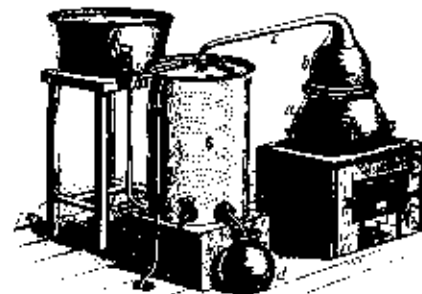
Stigmatia
(*S. ficoides*)
2223-WN



Stickleback 3442R-MN
(*Pygosteus pungitius*)



Stickleback 2150-WN
(*Gastrosteus aculeatus*)



Still 3540R-WN
a Boiler; b Head; c Tube; s Worm in cold water; d Receiver



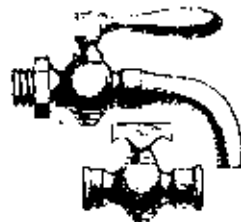
Stoup
3234R-W



Stocks 3231-W4



Stoup
3234-W4



Stopcocks 3772-WN



Stocks 8018-W



Strobiles 3237R-W4
(Of *Zamia*)



Stone Fly 3661R-MN



Stockade 3232-W4



Stoloniferous 3233R-W4



Stomapoda (*Squilla mantis*) 3841R-MN
A abdomen; p Pygidium; o Compound eye; a a' Antennae; b c d Maxillipeds; e-f' Thoracic legs; s Swimmerets; u Uropods



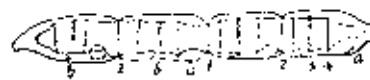
Stonechat 3445R-WN
(*Pratincola rubicola*)



Strobila 2162-MN
(*Aurelia flavidula*)



Stretcher 2430-WN



Strobilation 3471R-MN
1 Primary division; 2 Secondary divisions;
3&4 Subsequent divisions of zoid;



Stork
(*Ciconia alba*)
3446R-MN

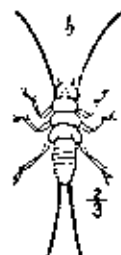
S



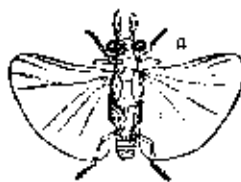
Stormy Petrel 1479-WN
(*Oceanodroma leucorhoa*)



Strawberry
Pear Flower
(*Cervus
triangularis*)
3236-W4



Stone Fly
Larva
3686R-MN



Strepsistera 2160-MN
(*Stylops childreni*)



Strawberry-leaf Roller
(*Phoxopterus fragariae*)
3450-MN



Strawberry 3235R-W4



Strawberry Moth 3448-MN
(*Angerona crocataria*)

S



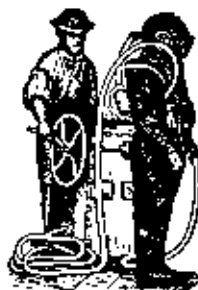
Stud Bolt
3469R-WN



Strombus (*S. gigas*) 3573-MN
t Tentacle; f Foot; v Verge;
o Operculum;



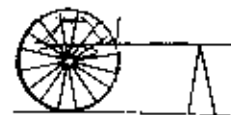
Stuffing Box
2201-WN
b Piston Rod;
c Packing



Submarine Armor
3521R-MN



Suctoria 2226-WN
n Nucleus; cd n undergoing fission;
fg Ciliated germs v Vacuole;
ab *Podophrya mollis*;
c *Podophrya steinii*;



Sulky 3239-W4



Stylommata
2165-WN



Submarine Armor
2250-WN



Stylommaria
3543R-MN

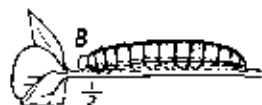


Sugar Mite 3579R-MN

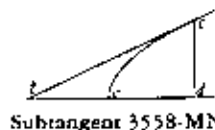


Sula (*S. leucogastra*) 3496R-MN

S



Sulphur Larva 3580R-MN



Subtangent 3558-MN



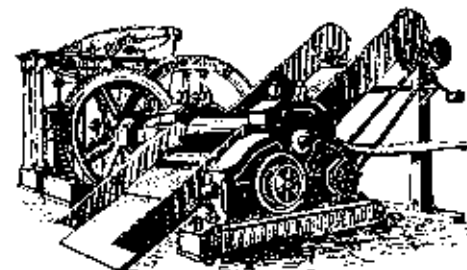
Scylus
14557-M



Submarine Telegraph
Cable 2412-WN
a Copper wires with
sheaths of Gutta-
percha, Yarn, Iron
wire, etc. b Trans-
verse Section of same



Sugar Mite
2307-WN
(*Tyroglyphus
sacchari*)



Sugar Mill 3506R-MN



Sugar Cane 3238R-WN
(*Saccharum officinarum*)

S



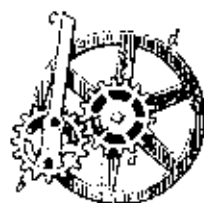
Sulphur-bottom 3563R-MN
(*Sibbaldius sulfureus*)



Sulphur 3555R-MN
(*Eurymus philodice*)



Sulphur-bottom 2291-WN
(Great Blue Whale)



Sun & Planet Wheels
2238-WN
a Sun wheel; b Planet
wheel; c Connecting
rod; d Fly wheel



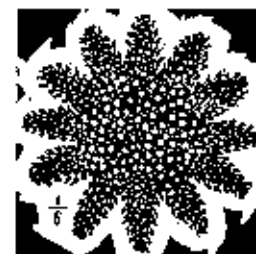
Sundew 3240R-W4
(*Drosera rotundifolia*)



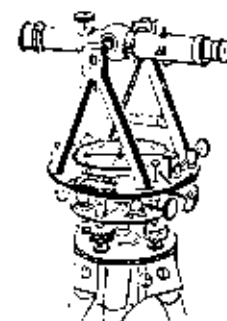
Sunbirds 3497R-MN
(*Giunyris osea*)



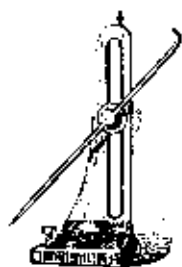
Sun Gem
3562R-MN
(*Heliactin
cornutus*)



Sun Star 2454-WN
(*Crossaster papposus*)



Surveyor's Transit
3624R-W4



Surface Gauge
3508R-MN



Supporters
3241R-W4



Surmounted
3242R-W4



Support Arms
887R-MN



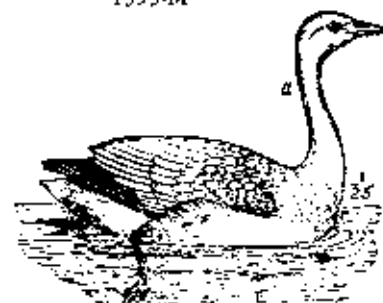
Surrender
1393-M



Swallowtail
3501R-W



Surf Duck 3499R-MN
(*Oidemia perspicillata*)



Swan (*Olor buccinator*) 3560R-MN



Swan 3561R-MN
(*Chenopis atrata*)



Suspension Bridge (Brooklyn Bridge & New York Harbor) 3950R-MN



Sweet Gum 3509R-MN
(*Liquidambar styraciflua*)



Sweet-sop 3245R-W4



Swift 3246R-M4
(*Chelidon rustica*)



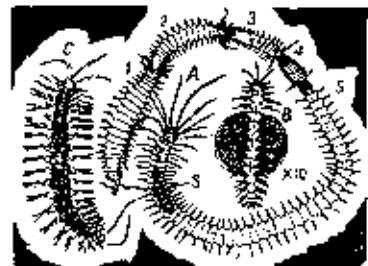
Swordbill 3556R-WN
(*Docimastes entiferus*)



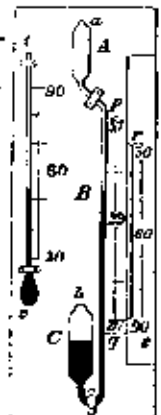
Swifts 3503R-MN
a European (*Cypselus apus*)
b American (*Chaturya pelagica*)



Swordfish (*Xiphias gladius*) 3504R-MN



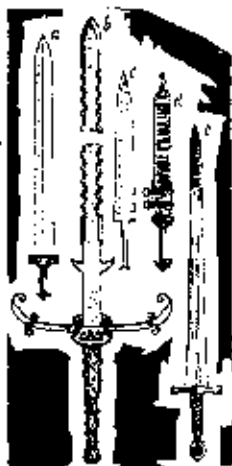
Syllidian 2322-WN
A Atokous individual producing five sexual individuals (1-5); B Female with egg sac; C Egg filled female.



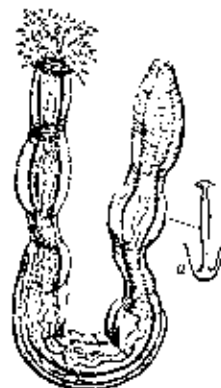
Sympiesometer 3250R-W4



Swivel in Chain 8064-W4



Swords 2427-WN
a Merovingian; b Two-Handed; c Roman; d Roman in Scabbard; e French of 12thC.



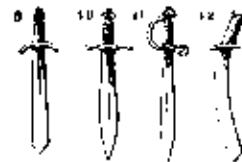
Synapta 2453-MN



Syrphus Fly Larva devouring aphid 1184-MN



Syrphus Fly (*S. politus*) 2321-WN



Swords 3248R-W4
9 Falchion; 10,11 Navy Cutlasses; 12 Hari-Kari



Sycamore (*Ficus sycamorus*) 3249-W4



ss Systems of *Botryllus gouldii*
m Mouth of zooid; c Cloacal Orifice 2286-WN



Sycone (*Scycandra ciliata*) 2842R-MN



Syncarpous 3251-W4

S

S

Tt



Table Saw 1990-WN



Tabard 5510-W



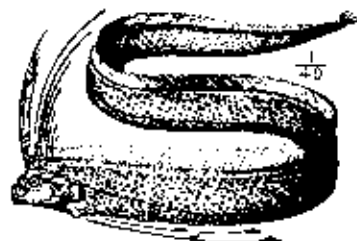
Tabard 3582-W4



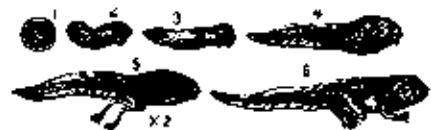
Tabard 3785R-WN
King Richard III
wearing a Tabard



Tachina Fly 2459-MN
(*T. doryphorae*)



Teniosomi 3764R-MN
(*Regalecus gladius*)



Tadpoles of Frog 3703-WN
1 Egg; 2-6 Successive developmental stages



Tadpole 2983-W



Tam-tam
3588R-W4



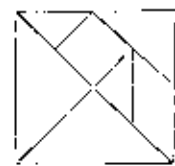
Tambourine 3587RB-W



Tangent Scale
3590R-W4



Tambourine 3587R-W4



Tangram
3591R-W4



Tailor Bird
(*Orthotomus
longicauda*)
1524-M4



Talipot 3796R-MN



Tail 3583R-M4



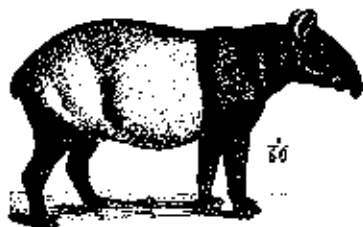
Tog Louse
2723-WN



Tamarind Tree 3586R-W4
(*Tamarindus indica*)



Tamandu 3585R-M4
(*Tamandua tetradactyla*)



Tapir (*Tapirus indicus*) 3819R-MN



Tapir 8137W-4
(*T. americanus*)



a Tasses
5535R-W



Tarsius 3822-MN
(*Tarsius spectrum*)



Taro 3592R-M4



Tartan 3593R-W4



Tanager 3706R-MN
(*Piranga ludoviciana*)



Tartan 2405-WN



Tasses
2444-MN



Tatouary 3595R-W4
(*Xenurus uncinatus*)



Tarpum (*Megalops atlanticus*) 3707R-MN



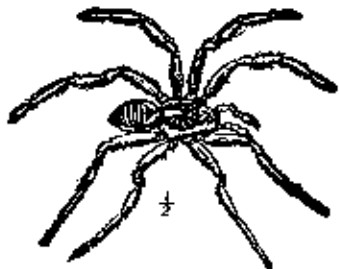
Tasmanian Devil 3844R-MN
(*Dasyurus ursinus*)



Tarsometatarsus
2464-M
b Tibia:
a Femur end;
1-4 Toes



Tarantula Killer
3820R-MN



Tarantula (*T. apuliae*) 3843R-MN



Teasel 3598R-W4
(*Dipsacus fullonum*)



Tasses
3594R-W4



Tautog (*Tautoga onitis*) 2338-WN



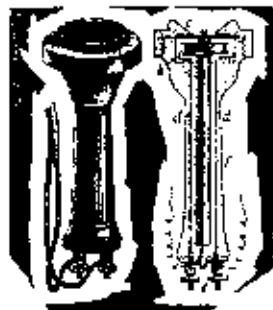
Taxicorn
2435-WN
a Antenna



Teeth of Man 2497-W
aa Incisors; b Canines; cc Bicuspids;
ddd Molars; e Crown; f Neck; g Root



Teak 3596R-W4



Telephone Receiver
a Diaphragm; b Bobbin
of wire; f Steel magnet;
d Holes in case; e Screws
2491-WN



Teeth 3660R-W
a Incisors; b Canine;
c Bicuspids



Teeth 7179R-M



Teal 3860R-MN
(*Anas carolinensis*)



Terebratula 3715R-M



Tenrec 3713R-MN
(*Ericulus spinosus*)



Teepee Town 5747R-M



Telescope 3768-W
(Newtonian)



Tea Plant
3597R-W4



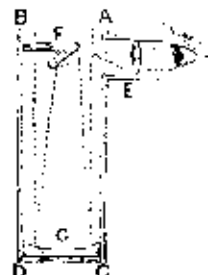
Tectibranchia
2339-WN



Telescope 2458-WN
(Lick Observatory, Mt. Hamilton, CA)



Teledu 3824R-MN



Telescope 3768R-MN
E Eyepiece; G Mirror;
F Small mirror



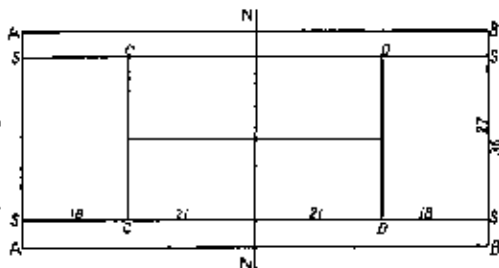
Tephrosia 3600R-W4



Tellin
3712R-M



Tench (*Tinca tinca*) 3832R-MN



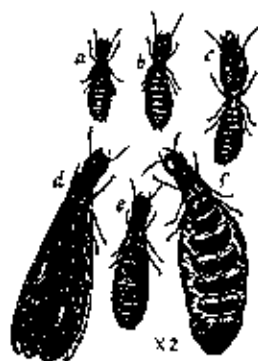
Tennis Court 3797R-MN
ABBA Double Court; SSSS Single Court NN Net



Teredo 3717R-WN
(*Teredo navalis*)



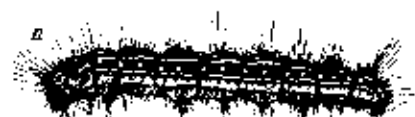
Tennis: Ball, Bat, & Court
3599R-W4



Termites 2743-W
(*Termites lucifugus*)
a Larva; b Worker; c Soldier;
d Male; e&f Wingless &
Pregnant Queen.



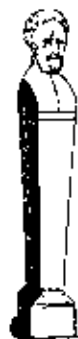
Tent Caterpillar 3802R-MN



Tent Caterpillar 3833R-MN
(*Cistiocampa americana*)



Tenrec 3714R-MN
(*Ceteles semispinosus*)



Terminus
3601R-W4



Terebra
2486-WN



Terminal
Bud
2452-MN



Terebra
(*T. tigrina*)
3846-M



Terminus
3602R-W4



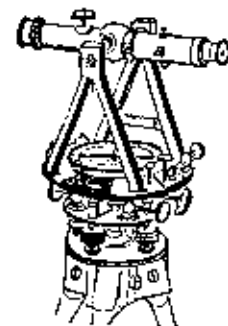
Ternate
3603R-W4



Terrier (English)
2352-MN



Tern (*Sterna hirundo*) 1514-MN



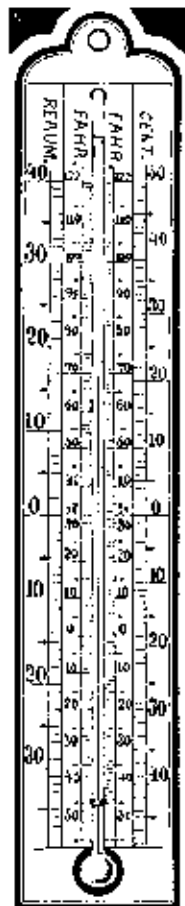
Theodolite 3624R-M



Terrapin (*Chelopus guttatus*) 2514-WN



Terrapin 3895R-MN
(*Malaclemmys palustris*)



Thermometer 2492-WN



Thrasher (*Alopias vulpes*) 9346-MN



Thecla 3721R-MN
(*Thecla humuli*)



Thistle Funnel
2414-WN



Tetrahexa-
hedron
2391-WN



Thistle 3607R-M4



Tetrabranchiata 2490-WN
(*Nautilus pompilius*)
b Hood; c Funnel; d Mantle; e Eye;
f Nidamental gland; g Gills; i Crop;
j Gizzard; m Muscle; t Air chambers



Tetrodon (*Lagocephalus levigatus*)
b Front view of the teeth. 3720R-MN



Testudo 3769R-MN
(*T. graeca*)



Tetractinellid
2501-MN



Thrush 3834R-MN
(*Turdus mustelinus*)



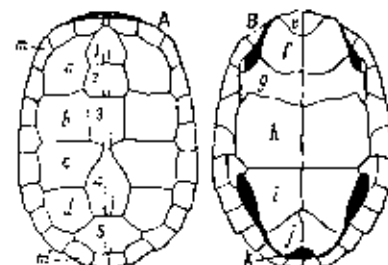
Thrips fimbriata
2467-W



Thoth
2468-WN



Thoth
3809R-W4



Testudinata 2517-MN
A Carapace plates; B Plastron plates
(*Nautilus pompilius*) b Hood;
c Funnel; e Eye; t Air Chambers



Thelphusian 3606R-W4
(*Thelphusa fluviatilis*)



Thrift
(*Armeria vulgaris*)
3692R-MN



Thorax 3828R-MN



Thyraus
3810R-W4



Thunder Snake 3847R-MN
(*Carphophis amoenus*)



Tiara
3611-W4



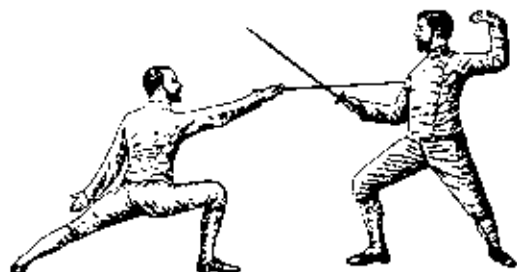
Tilt Hammer 2443-WN
a Helve; b Pivort; c Hammer
head; d Anvil; f Shaft; g Prop



Tiger (*Tigris regalis*) 2451-WN



Thysanura
(*Macchilis variabilis*)
2475-WN



Thrust and Parry 5662R-M
"Ombelico!"



Tiger Beetle
(*Cicindela hirticollis*)
3780A-MN



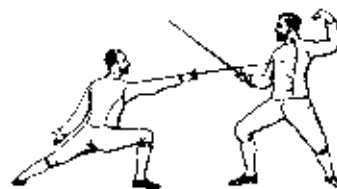
Tilefish 3724N-MN
(*Lopholatilus chamaeleonticeps*)



Tiger Swallowtail
(*Papilio glaucus*)
501R-MN



Ticker Tape 3788R-M



Thrust and Parry 15072R-ML
"Alcidcano!"



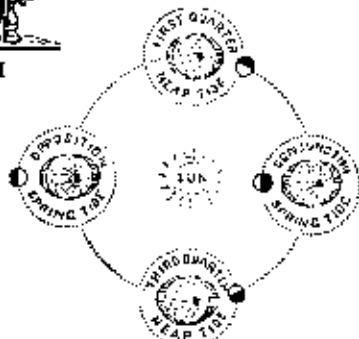
Tincan 2366-MN
(*Lithocolletis*)



Tinamou 3726R-MN
(*Rhychotus rufescens*)



Tiger Cat (*Felis marmorata*) 5848-MN



Tides 3690R-MN



Time Zones 47-47-ML



Tingis 4294-M
(*Corythuca arcuata*)



Toad 2149R-W4
(*Bufo vulgaris*)



Toadstool 3612R-W4



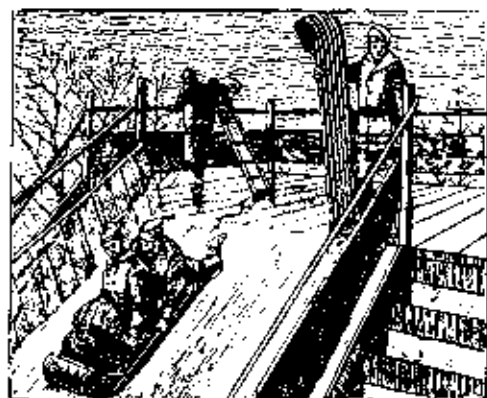
Toadfish (*Batrachus tau*) 2510-WN



Toad 3854RA-MN
(*Bufo lentiginosus*)



Titmouse 3836-MN
(*Parus cteruleus*)



Toboggan Slide, with Toboggans, & Persons in Toboggan Suits 2503-WN



Toboggan 7216R-ML



Toga 2532-WN
(*Caius Marius*)



Tody 2502-MN
(*Todus viridis*)



Toga 3614R-W4



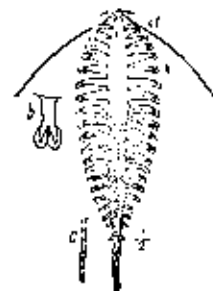
Toggle Joint
3615R-M4



Tomato Worm 3864R-MN
(*Sphinx quinquemaculata*)



Toggle Iron
3257R-MN



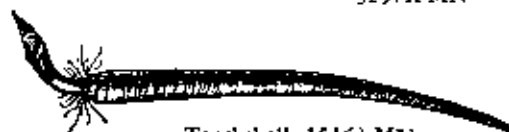
Tomopteris 856R-MN
a Female with eggs;
b Parapodia; c Tail.
(*T. smithii*)



Toggle Iron
5514R-M



Tomahawk
3616R-W4



Toothshell 15163-MN



Toothed
2417-WN



Toggle Joint
3615R-W4



Tooth of Iguanodon 1932R-M



Top 831-W



Top 9955-M



Top 2512-WN



Top & But 2548-WN



Topknot 3831R-M4 (*Rhombus punctatus*)



Topsail Schooner 4357R-M



Top-shell 3765R-M (*Calliostoma bairdii*)



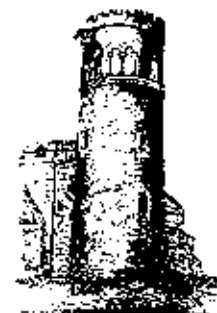
Toxodonta 3858R-MN
Skull of *Toxodon burmeisteri*



Tortrix 3730R-MN



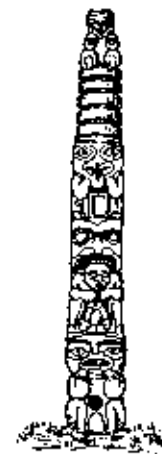
Tortoise-shell Butterfly (*Vanessa milberti*) 3729R-MN



Tower 3619R-W4
Is it real?



Toucan 2370-WN (*Ramphastos toco*)



Totem Pole 4753-MI



Torpedo 8095-W



Torpedo 8025-W



Torpedo 3617R-W4 (*Torpedo vulgaris*)



Tope (*Galeus galeus*) 3837R-MN



Tortoise Beetle 3838-MN



Trachea of Insect 3529R-MN



Tortoise (*Chelopus gulfatus*) 3901-M



Trachystomata 3923R-MN (*Siren lacertina*)



Trammel 15171-M4



Trapezium 3625R-MN



Treble Clef 9615-M



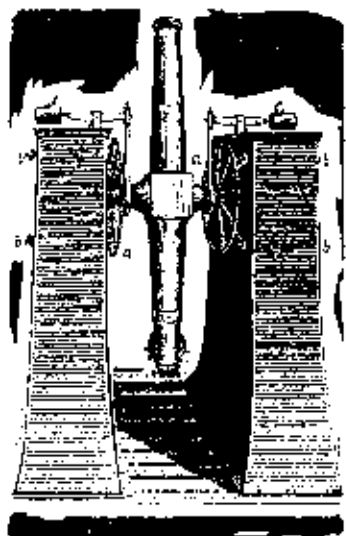
Trapdoor Spider and Nest (*Cteniza todieni*) 2519-MN



Tracks of Otozoum 1585-WN



Treadmill 3626R-W4



Transit Instrument 2516-WN



Toxoglossa 3921-M (*Bela exarata*)



Toxoglossa 2533-WN



Trematoid Worm (Sheep Fluke) a Mouth; c Stomach; j Esophagus; v Vesicle 843R-MN



Yew 8044-W



Sycamore 8071-W



Cedar 8112-W



Spruce 8020-W



Larch 8131-M



Sycamore 8071-M



Larch 8131-W



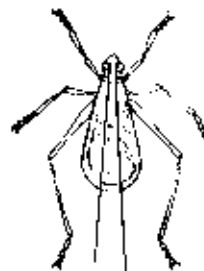
Trefoils 8108-W4



Tree Fern (*Cynthia medullaris*) 3925-M



Tressure Counter-Feury 3628R-W4



Tree Cricket (*Ecanthus niveus*)



Tree Hopper 3733R-M



Triandrous 3629-W4

TRIANGLE



Triangle & Rod
2538-WN

You beat the Triangle
And curse everything.
-Bruce Phillips



Isosceles
Triangle
1851R-W4



Equilateral
Triangle
3630R-W4



Right
Triangle
3632R-W4



Obtuse
Triangle
3633R-W4



Trigonal
Trisoctahedron
2588-W



Trinucleus
3767R-MN



Trichoptera
15176-MN



Trinucleus
(*T. concentricus*)
2410-WN



Trichiurus 3816-W4



Trilocular
3637R-W4



Triceratops 4854R-M



Triangle Spider
b Enlarged foot;
c Its web
2376-MN



Trilacna 2521-WN
(*T. squamosa*)



Trimurti 3638R-W4



Tridacna 15177-M



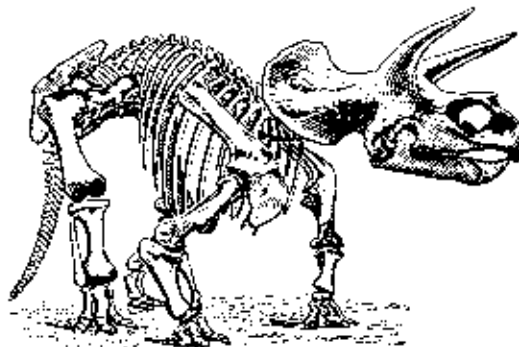
Trident Bat 2377-WN
(*Trianops persicus*)



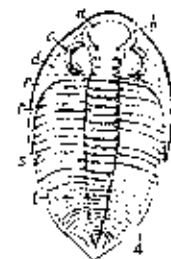
Trident
3636-W4



Trillium 2563-WN
(*T. erectum*)



Triceratops 6747-M



Trilobite 2524-MN
(*Dalmanites*)
a Glabella;
b Ocular suture;
c Eye; d Gena;
r Tergum;
t Pygidium



Trionyx (*T. ferox*) 2525-M



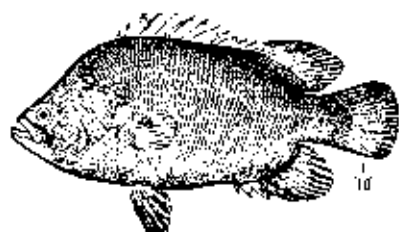
Truncated Shell 3938-W
a Adult;
b Young



Trionyx (*T. ferox*)
4422R-MN



Triton
2471-WN



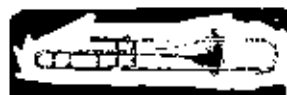
Triple-tail 3914R-MN
(*Lobotes surinamensis*)



Tristoma 2379-WN
Suckers: aa Anterior;
b Posterior; m Mouth
(*Tristoma sanguineum*)



Troilus Pupa
2550-WN



Trombone 2401-WN



Trochus *rizophinus* 37R-M



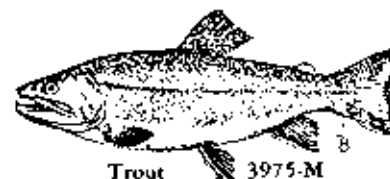
Tripartite
3639R-W4



Triton 3849R-WN
(*Hemisulamandra cristata*)



Truelove Knot
2724-MN



Trout 3975-M
(*Salvelinus fontinalis*)



Truelove Knot
3644R-W4



Trophon
clathratus
2541-W



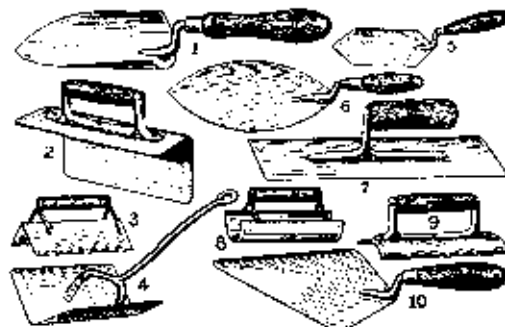
Troilus 3974R-MN
(*Euphaedra troilus*)



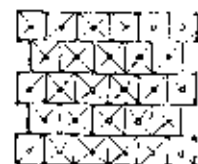
Truffle 3646R-W4
(*Tuber cibarium*)



Trowel 3642R-M4



Trowels 7258R-M



Trou-de-loup
3640R-M4



Trou-de-loup 3641R-W4



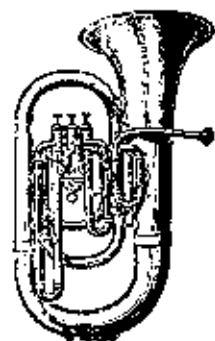
Trumpet Creeper 3696R-MN



Tuning Fork
3654R-MN



Trumpet 2445-WN



Tuba 5939R-M



Tsetse Fly 3928R-MN
(*Glossina morsitans*)



Tubicola 3698R-MN
b Branchia; c Cirri;
s Ventral Shields;
t Tori



Truncated 3649R-W



Truncate
3697R-MN



Trumpet 3793R-MN
(Modern, with pistons)



Tub Wheel
3652R-M4



Tubulipore 3941-MN
(*Tubulipora serpens*)



Tulip-shell
(*Fasciolaria tulipa*)
2382-W



Tulip 3653R-W4



Tulip Poplar 1224-WN
(*Liriodendron tulipifera*)



Tulip 3918R-MN



Tubularia 3701R-MN
(*T. indivisa*)



Tubular Bridge 3651R-W4



Tunicata 2383-WN
(*Ciona oculata*)
i Mouth; g Ganglion;
b Branchia; c Atrium;
o Ovary; t Test



Tun-shell 3976R-M



Tumbledung Beetle
(*Phanus carnifex*)
3766R-MN



Tun-shell 2591-W
(*Dolium pernix*)

TURBULENCE



Turacou 4009R-MN
(*Turacus corythaix*)



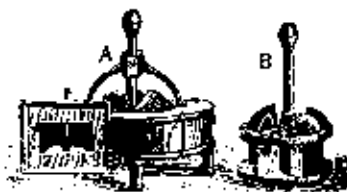
Turbot 2564-WN
(*Rhombus maximus*)



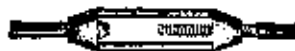
Turnbuckle 711R-MN



Turritella
(*T. imbricata*)
3745R-MN



Turbine 2402-WN
A Water turbine; B Wheel



Turnbuckle 711R-MN



Turbellaria 3977R-MN
(*Macrostomum auritum*)
a Otolith; m Mouth; n Body cavity;
c' d Male organs; cc' Ovaries



Turkey 3656R-MN



Turkey Vulture 3741R-MN
(*Cathartes aura*)



Turkey 3656R-WN

TURNING POINT



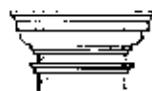
Turnstile
8032-W



Turnus Larva 256-MN



Turnstile 3657R-W4



Almost Tuscan
490R-W4



Turnus 3744R-MN
(*Papilio glaucus*)



Turtle 8039-W



Twin Crystals
2593-WN



Turn. Performed thus, or thus.

Turn R5532-M



Turret 1113R-MN
(Marat was here)



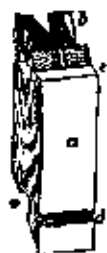
Tyrant Flycatcher 3987R-MN
(*Empidonax acadicus*)



Tyrant 3746R-MN



Turtle dove 3955R-MN
(*Turtur vulgaris*)



Type 3658R-M



Turnix (*T. nigrofrons*) 2385-WN



Type 3658R-M4

This line is in nonpareil church text.

english pointed

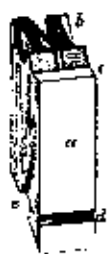
Typewriter

Script.

Old English. Black Letter. Boldface.
Gothic. Antique. Clarendon.
Caslon Old Style. French Elzevir.
Typefaces 56-232-MN

standard lightface
boldface extrabold
standard condensed
extra-condensed extended

Typographical Terminology M



Type 3658R-W4
a Body; b Face;
c Shoulder;
d Nick; e Groove

Uu



Umbel 3867R-MN



Una Boar 4362R-MN



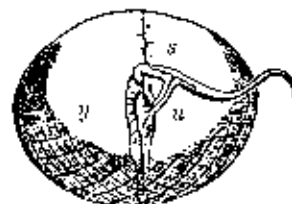
Umbra (*Umbrina cirrhosa*) 3990-MN



Umbonate 3868R-W4



Umbrella Shell (*U. mediterranea*) 3883R-M



Umbilical Vesicle 4565R-MN
y Umbilical vesicle of a skate;
s Embryo; u Umbilical cord



Umbrella Ant 2605-MN
a Female



Umbrella Ant 2606-MN
b Worker w. leaf



Unconformability 2544-WN



Umber 2603-WN
(*Scopus umbretta*)

T

U



u Umbo
2594-W



Una Boat 2652-WN



Umbrella Shell
*Umbrella
mediterranea*
2608-W



Unicorn Moth 2612-WN
(*Coelodasyis unicornis*)
a Larva; b Imago



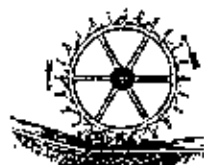
Unicorn 3872R-W4



Unicorn Shell
(*Leutoronia cingulata*)
2613-W



Ungulata 3649R-MN
a Tibia; b Tarsal
Bones; c Canon
Bone; d,e,f Phalanges



Undershot Wheel
8007-W



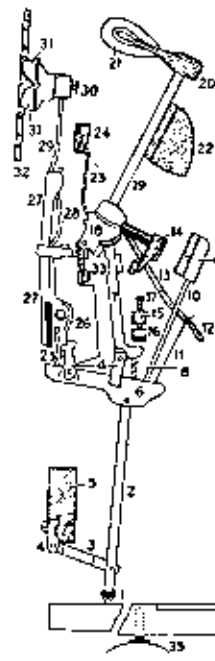
Uncinate
2996R-MN



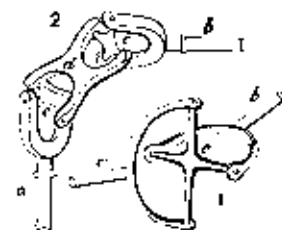
Ungula
3871R-W4



Undershot Jaw
2545-MN



Upright Piano Action 14057-ML



Universal Joints 3873R-W4
1 Single; ab Shafts; c Cross.
2 Double; ab Shafts; cc Crosses;
d Connecting Link.



Unio (*U. radiatus*) 2615-W



Univalve
3983R-MN
(*Siphonostomatous*)



Unau 3981R-MN
(*Chotopus didactylus*)



Unfix Bayonet
892R-MN



Underwing 4067R-MN
(*Catocala ultronia*)



Undulated Shell
(*Astarte undata*)
3956R-M



Urn 1137R-M



Urodela (*Desmognathus fuscus*) 2622-WN



Ursus syriacus 2926-WN



Ursula 2619-MN
(*Limenitis astyanax*)



Urbicola 2600-WN
(*Epargyreus tityrus*)



Ursa Major 2618-WN

U

V v



Valley Roof
969R-MN



Valvata tricarinata
3959-MN



Vaginicola
(*V. cristallina*)
2703-WN



Valvular
3875R-W4



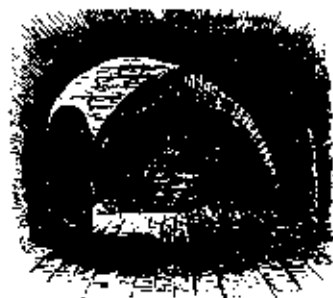
Varuna 3876R-W4



Vaulted
3878R-W4



Vampire (*Desmodus*)
3961R-MN
(True Vampire)



Vault 3877R-W4

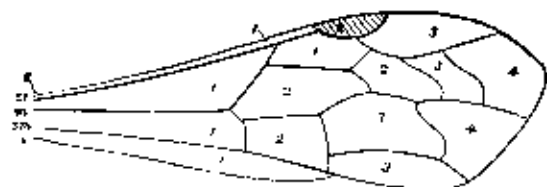


Vampire 3960-MN
(*Vampyrus spectrum*)
(False Vampire)

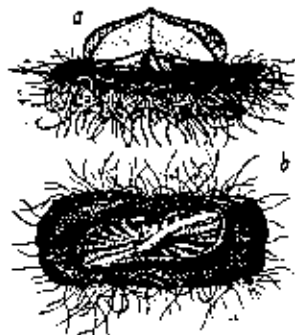
V



Vegetable Ivory
3879R-W4



Venation of a Hymenopterous Wing 4295R-MN
c Costal; m Median; i Internal; sc Subcostal;
sm Submedian; 1-4 Cells corresponding to each vein



Veella 3964R-MN
(*Veella mutica*)
a Side view; b Dorsal view



Vatum (*V. cornigerum*) 2655-WN
a Side view with Animal; b Front of Shell



Vega
5570R-M



Velvet Grass
4878R-MN



Velocipede 1456-M



Veneracea 2577-WN
(*Gemma gemma*)



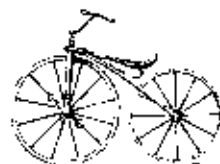
Venticose Shell
(*Sipho pubescens*)
2657-WN



Veligers of Gastropods 2692-WN



Venus Flytrap
(*Dionaea muscipula*)
3881R-W4



Velocipede 3880R-W4



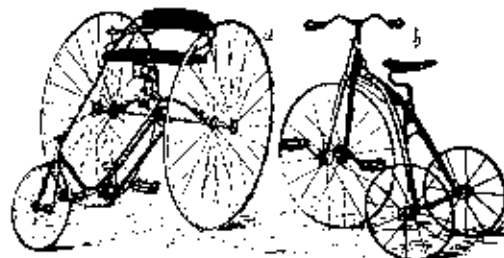
Velum 3965R-MN
(of *Dysmorphosa fulgurans*)
n Young Zooids budding



Velocipede 3880R-M4
(Two wheeled)



Venus's Basket
4196R-WN



Velocipedes (Three wheeled) 4106R-WN



Venus's Girdle (*Cestum veneris*) 4071-WN



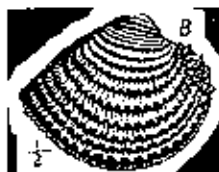
Vermetus
(*V. radicola*)
n Operculum
2694-W



Venus 2750-W
(*Chione gnidia*)



Vermetus
2695-W



Venus 2751-M



Vesiculose Shell 4060-M



Victorine
3888R-W4



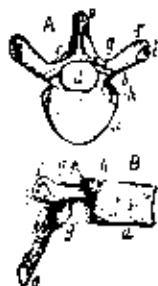
Vesiculose Shell 2663-W
(*Pecten pustulosus*)



Verticillate
3884R-W-1



Vernier 4055R-M4



Vertebrae
4057-MN



Verrebrae
4058RMN



Viaduct 3885-W4



Grivet
(Nor Vervet)
1581R-WN



Vestlet 4077R-MN
(*Cerianthus borealis*)



Vesicles
4059R-MN
(*Fucus nodosus*)



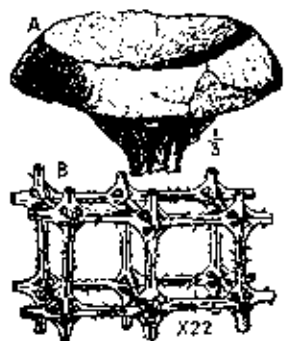
Veranda 3882R-W4



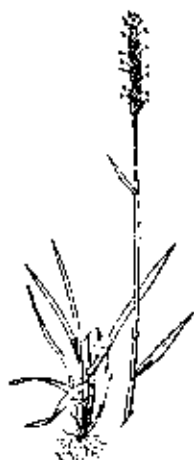
Vespertilioes 4076-MN
(American Red Bat)



Vibracula
4078R-MN
(*Cellularia ternata*)



V
(*Cecloptychium seabachi*)



Vernal Grass
4827R-MN



Vicroy Butterfly 4095R-MN
(*Basilarchia archippus*)



Victoria 3887R-M4



Victoria Regia 3886R-W4



Vireo 4185R-MN
(*Vireo olivaceus*)



Vine-Leaf Roller
(*Desmia maculalis*)
4099R-MN



Vine Inchworm 3988R-WN
(*Cidaria diversilineata*)



Vice Admiral 4431R-M4



Vicuña 4080R-MN
(*Auchenia vicuuna*)



Victoria Regia (*V. regia*) 4079R-WN



Vise 4125-MN



Vishnu 3891R-W4



Visc 3890-W4



Violin 3889R-M4



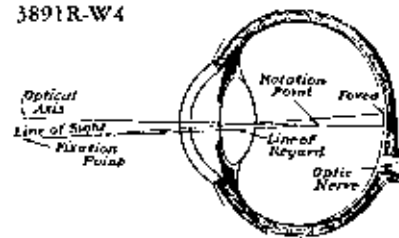
Vine Sphinx 4083R-4084R-WN
(*Darapsa myron*)



Violet 4084R-MN
(*Polyommatus pseudargiolus*)



Vole 4085R-MN
(*Arvicola riparius*)



Vision 6004R-ML



Vine Beetle
(*Graptodera chalybea*)
2706-MN



Violet Tip 3968R-MN
(*Polygonia interrogatoris*)



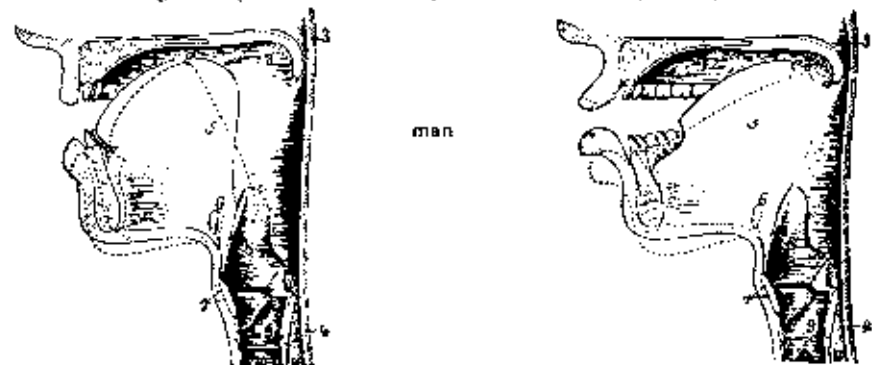
Viper (*Pelias berus*) 2698-MN



Vitreous Sponge 4097R-WN
(*Rosella velata*)

VOCAL ORGANS IN VOWEL POSITIONS

.... Tongue in position denoted by dotted line (Low, Wide)

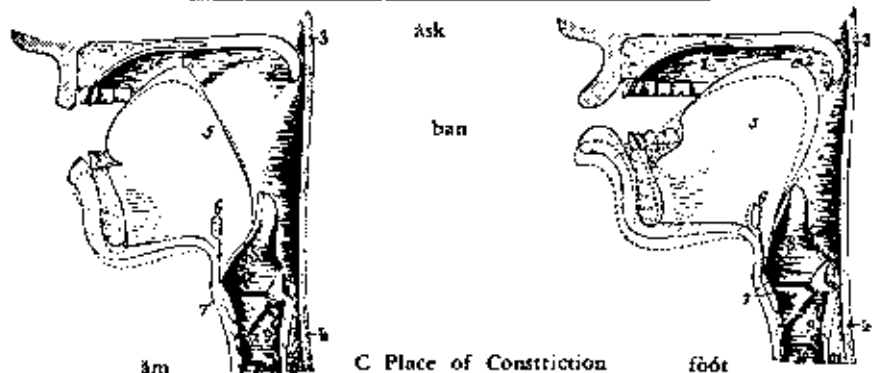


cáre

all

pace

can



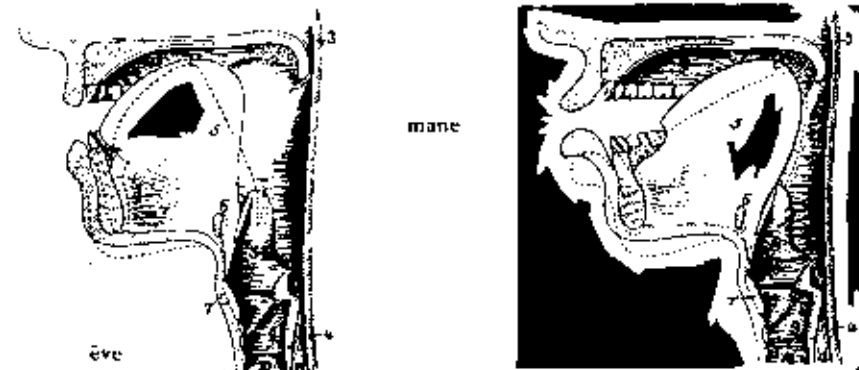
C Place of Constriction

fóót

1 Hard Palate; 2 Soft Palate; 3,4 Back wall of Pharynx; 5 Tongue; 6 Tongue Bone;

VOCAL ORGANS IN VOWEL POSITIONS

— Tongue in position denoted by solid line (Narrow, High)



mane

eve

peace

food

cane



ám

ban

food

C Place of Constriction



care

7 Right Vocal Cord; 8 Fold; 9 Cricoid Cartilage; 10 Windpipe; 11 Oesophagus



Voluta
2689R-MN



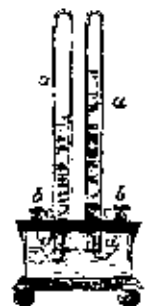
Visite
3892R-W4



Volute Spring
4087R-WN



Voluta
imperialis
2689-WN



Voltmeter
3893R-W4



Vishnu 3891R-M4



Volva
volva
2211-W



Voltaic Pile
4002-MN

Ww



Wagonette 4028R-W4



Wall Gecko 4168R-MN
(Platydictylus mauritanicus)



Wall Creeper
4132R-MN



Walking Stick
3800R-WN
(Diapheromera femorata)



Wall Knot 2715 WN
a. Strands arranged to form b. completed knot



Walking Fern
4115R-MN



Vulture 4063-WN
(Pseudogryphus californianus)



Vortex 4118R-MN



Condor 1016R-WN
(Sarcorhamphus gryphus)



Wall-eye 4011R-MN
(Stizostedion vitreum)



Walrus (Paul) 8069-M

V

W



Wanderoo 4156R-WN
(*Macacus silenus*)



War Horse 4029R-W4



Water Buck 4197R-MN
(*Kobus ellipsiprymus*)



Washer
4030R-W4



Warbler 4418-WN
(*Sylvania mitrate*)



Warbler 739R-WN
(*Dendroica blackburnise*)



Water Bug 2752-WN



Walrus (*Trichechus rosmarus*) 4113R-MN



Wart Hog 15231-MN
(*Phacochoerus aethiopicus*)



Warbler 4120-MN
(*Dendroica tigrina*)



Water Chestnut
4138R-MN



Water Moccasin
2721-WN



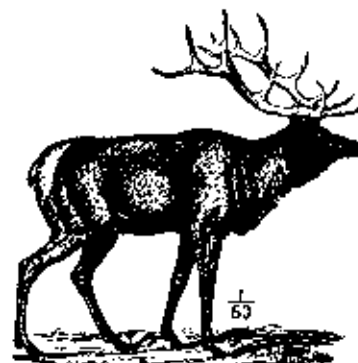
Wasp Nest 4423R-WN



Watch-tower
495-D4



Water Beetle
2731-WN
b Larva;
c Sexual suckers



Wapiti 4012R-MN
(*Cervus canadensis*)



Water Clock
5737R-M



Water Ousel 4138R-MN
(*Hydrobatas cinclus*)



Water Spaniel 4199R-WN



Water Thrush 4176R-MN
(*Seiurus motacilla*)

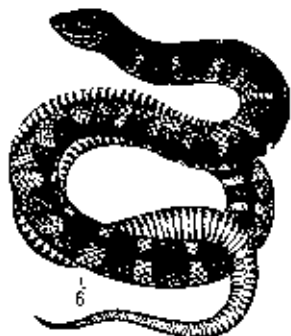


Water Scorpion
2380R-MN



Wedge Shell
2754-WN

Wedge-shell
2755-WN



Water Snake 4123R-MN
(*Tropidonotus sipedon*)



Wedge-Shaped
3697R-MN



Wax Palm 4031R-W4
(*Ceroxylon andicola*)

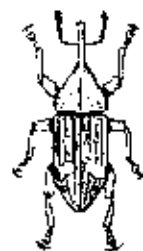


Water Mite 2765-MN
(*Hydrachna formosa*)
a Adult; b Palpi;
c Side view



Water Spider 4157R-WN
(*Argynnetta aquatica*)
a With air bubble; b Diving;
c Filling nest (d) with air

Water, water, every where,
-Coleridge



Weevil 4128-MN
(*Otiorynchus salcatus*)



Weasel 4209R-WN
(*Mustela putorius*)



Weevil
2540R-M



Whack! 8084-W



The Great Wave off Kanagawa
Katsushika Hokusai 1849.W



Whalebone
2016-MN



Water Gauge
2734-WN
a Wall of
boiler; b Gauge;
c Boiler; e Cocks



Weever (*Trachinus draco*) 4143R-MN



Biscay Whale (*Iselena cisarctica*) 4145-MN



Weaver Bird
(*Ploceus baya*)
4014R-MN

WHATEVER



Wheel Animal
4161R-MN
(*Melicerta biloba*)



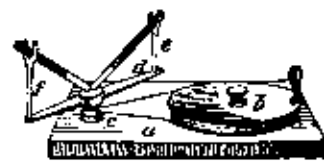
Wheat Midge 2908-MN
(*Diptosis tritici*) a Larvae in
wheat flowers; b On grain;
c Larva; d Female imago



Wheel 4032R-W4



Whelk 2812-MN



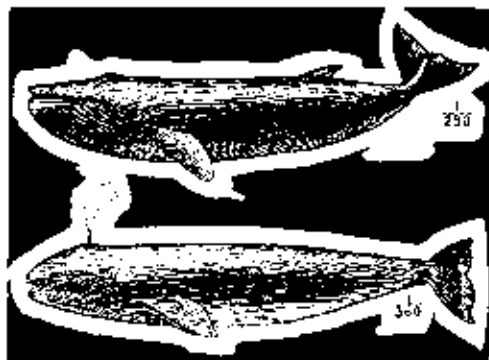
Whirling Table 4034R-M4
a Footboard; b Wheel; c Pulley;
d Arm; e Uprights



Wentletrap 4219R



Wheatworm
4171R-MN



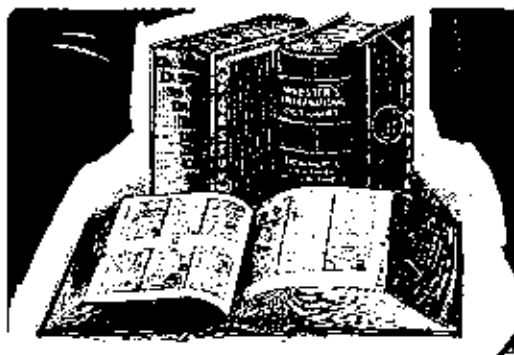
Whales 891-WN



Wheat
a Bald
b Bearded
15288-MN



Whidah Bird
4172R-MN



Leviathan 846-WN



Whipworm
2802-WN
s Spicule



Wheat Beetle
4141R-MN
(*Anobium panicum*)



Wheel Bug 2758-WN
A Adult; B Young
(*Prionidius cristatus*)



Wheat Thrips
2766-WN



Whelk 2813-MN
(*Buccinum tottenii*)



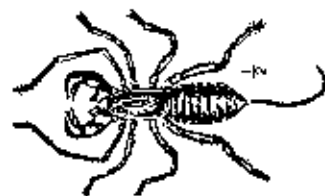
Wasn'r Wisint 207R-W
What is it? (Aurochs)



Wentletrap 2811-WN
(*Scaloria pretiosa*)



Whip-poor-will 2769-WN
(*Antrostomus vociferus*)



Whip Scorpion 4202R-MN
(*Thelyphonus caudatus*)



Whisky Jack 4015R-MN
(*Perisoreus canadensis*)



Whistle
3663R-MN



Windmill 2745-W4



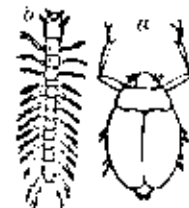
White Bear 249R-W
(*Ursus maritimus*)



Widgeon (*Anas americana*) 2776-WN



Whorls 8038-W



Whirligig
4124R-MN
(*Gyrinus borealis*)
a Adult, b Larva



Wicker Basket
8578-M



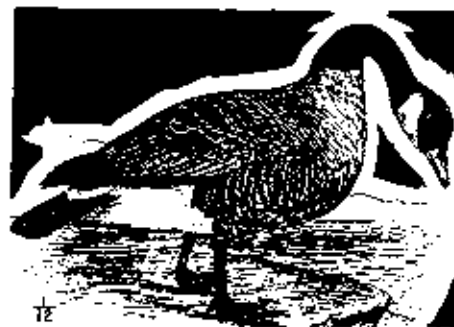
White Perch 4165R-MN
(*Morone americana*)
Caught all my perches and now they's gone.
-Hurt



Whorls
2775-WN
a Nuclear;
b Spire;
c Body



Whiting (*Merluccius vulgaris*) 4165R-MN



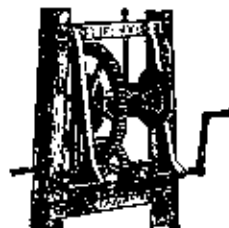
Wild Goose (*Branta canadensis*) 2813-WN



Wigwam 2746-WN



Winch 4037R-WN



Winch 4147R-MN



Willet 4018R-WN
(*Symphemia semipalmata*)



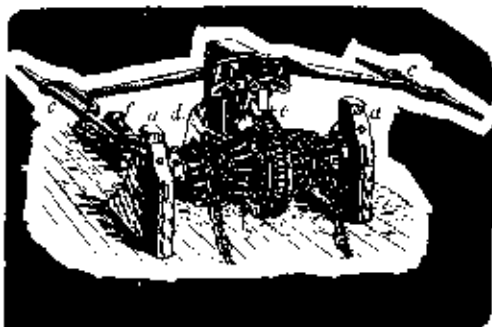
Wood Screw 4205R-MN



Wombat 4046-MN
(*Phascogalemys ursinus*)



Wolf (*Canis occidentalis*) 2881-MN



Windlass 2777-WN
a a Carrick bits; b Spindle with whelps;
cc Brakes; d; e Pawl & ratchet wheel; f Dog



Wiggler 4101R-MN
a Larva, b Pupa,
of Mosquito



Wood Screw
4205R-MN



Wolf Spider
2805-WN
(*Lycosa nidicida*)
b Palpus; b Eyes
c Epigynum;



Woodhead 422422-W



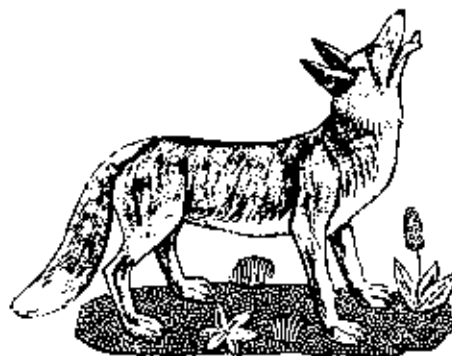
Weeping Willow
(*Salix babylonica*)
4036R-W4



Windowpane 4212R-WN
(*Pleuronectes maculatus*)



Winkle (*Fulgur canaliculata*) 2760-W
c Canal; s Siphon; h Head; p Proboscis;
r Radula; m Mantle; f Foot; o Operculum



Wolf (*Canis lupus*) W



Wood Engraver Furrows
(*Scolytus taryx*) 2819-W



Wood Hoopoe 4204-WN
(*Irisor erythrorhynchos*)



Wood Louse
(*Clothilla pulsatoria*)
4103R-MN



Woodcock 4177R-MN
(*Scolopax rusticola*)



Wood Nymph
(*Eudryas grata*)
A Imago; B Larva;
C Egg
2747-WN



Woodchuck 4022R-MN
(*Arctomys monax*)



Wood Grass
4238R-MN



Wood Tick
(*Ixodes unipunctata*)
2300-MN



Wound Gall
a Gall; b Weevil
2647-WN



Woodcock 4175R-MN
(*Philobela minor*)



Woods 14277R-ML



Woolly Bear Caterpillar 4047R-MN
(*Spilosoma aceræ*)



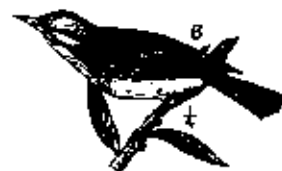
Woodpecker 4104R-MN
(*Campophilus principalis*)



Woodpecker 4024-WN



Worm Gearing
a Worm Gear
b Worm Wheel
4151R-MN



Wormeating Warbler
(*Helmitherus vermicivorus*)
4119R-MN



Wren 2648-WN
(*Troglodytes aëdon*)



Wrasse (*Labrus trimaculatus*) 27781-MN



Wreathe
5379R-M



Woolly Bear 1125-WN

W

W

Xx



Xylophone 4228R-MN



Xylotrya (*X. fimbriata*) 4167R
a Exterior; b Interior; c Pallets



Xiphoid (*Mesoplodon sowerbiansii*) 2786-WN



Xiphura 4228R-MN



Xebec 4243R-MN



Xebec 2835-WN



Xebec 4245R-MN

Yy



Yama 4042R-W4



Yeti 1-W



Yak (*Poëphagus grunniens*) 4215R-MN



Yacare (*jacare sclerops*) 228R-MN



Yellow-Bellied Sea Snake
(*Pelamys bicolor*) 2008-WN



Yawl 4360R-MN



Yapock 2780-WN

X

Y



Yawl 6128R-ML



Yet 4241R-MN
(*Yetus cymbium*)



Yin & Yang
6009-W



Yucca Moth 4242R-MN
(*Pronuba yuccasella*)



Yellowwood 2782-MN
(*Cladrastis tinctoria*)
a Branch; b Seed Pod;
c Flower



Yuen 4246R-MN
(*Hylobates pileatus*)



Yew 4044-RW4
(*Taxus baccata*)



Yew 8044-W



Yellowthroat 4126R-MN
(*Geothlypis trichas*)

Zz



Zamia
1190R-WN



Zaphrentis 4234R-MN
a Side view; b Cup interior



Zebra (*Asinus zebra*) 4216R-MN



Zebra Wolf 4191R-M



Zoea 2837-WN
a Antennae; b Jaws;
c Maxillipeds



Zebu (*Bos indicus*) 4224R-WN



Zeuglodon
4236R-MN



Zibeth 2800-WN



Ziggurat 2981-ML



Zoanthus
(*Z. solandieri*)
4232R-MN



Aardvark 13465-M



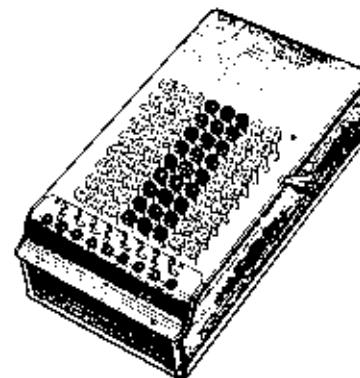
Zither 5941-M



Zodiac 4045R-WN



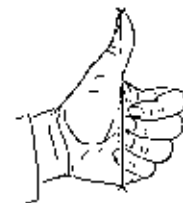
Zither 4225R-MN



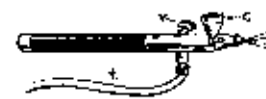
Adding Machine
5685R-M



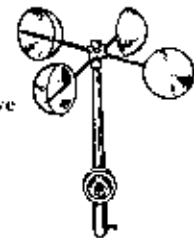
Altimeter 47-4-M



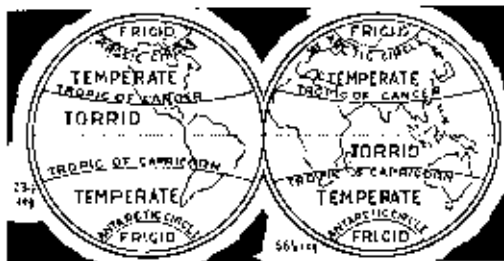
"Aaaaay!"
14171-M



Air Brush 4970R-ME
c Color cup; t Tube; v Valve



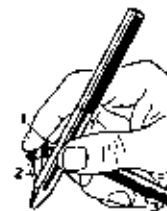
Anemometer
4992R-ME



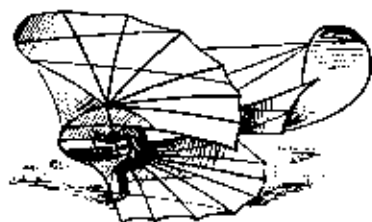
Zones 2827-WN



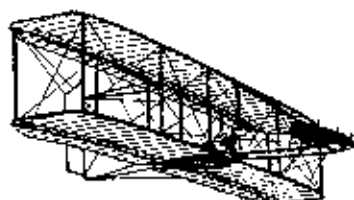
Artist's Fix 7120R-M
1 Thumbscrew; 2 Blade; 3 Brace



Airbrush 13176-M



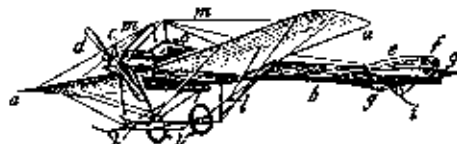
Aéroplane 4948-ME



Gliding Machine 6584R-ME



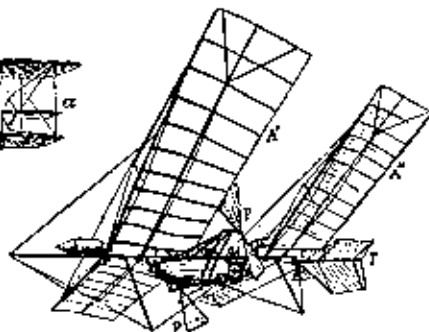
Biplane Struts (S) 9715-M



Monoplane 13008R-M



Biplane 13014R-M



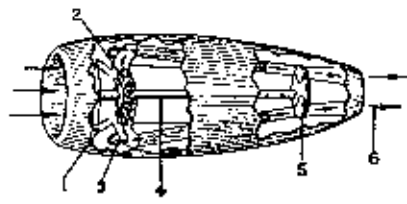
Aérodrome 4562R-ME



Floatplane 9485-M



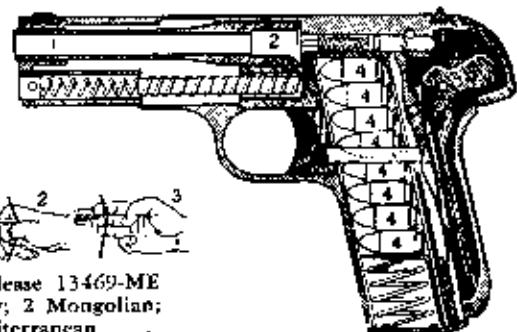
Wright Aéroplane 7301-M



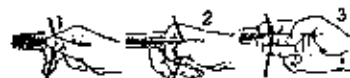
Jet Engine 47-31-M
1 Air intake; 2 Impeller; 3 Fuel injection;
4 Drive shaft; 5 Turbine; 6 Exhaust



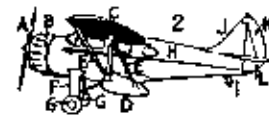
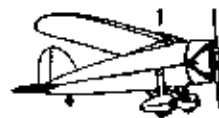
Automatic Pistol
8717-M



Automatic Pistol
5054R-ME
1 Barrel; 2 Chamber;
3 Firing Pin; 4 Cartridges;
5 Hammer; 6 Trigger



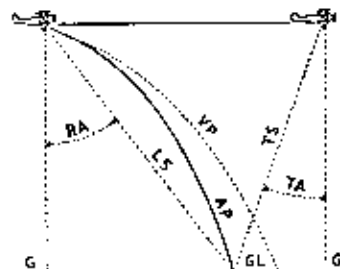
Arrow Release 13469-ME
1 Primary; 2 Mongolian;
3 Mediterranean



Airplanes 9759-M
1 Monoplane; 2 Biplane; 3 Helicopter;
4 Floatplane; 5 Flying Boat; 6 Seaplane



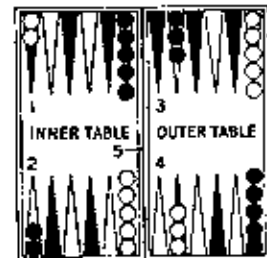
Baby Bug 8696-M



Ballistics of Bombs 13458-M



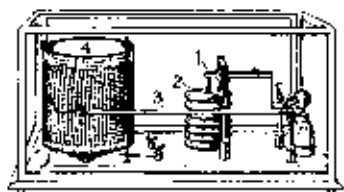
Backhand 8941-M



Backgammon 13404-M



Bertha
9184-M



Barograph 5274-ME



Border
Margarita Glass
02138-M



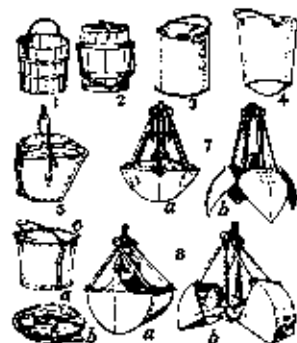
Bluejacket
5260R-ME



Battleship 54335-M



Cartridge



Buckets 14467-M



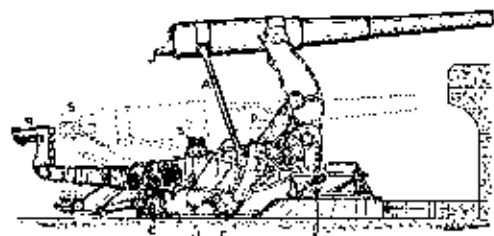
Bicycle 5233R-ME



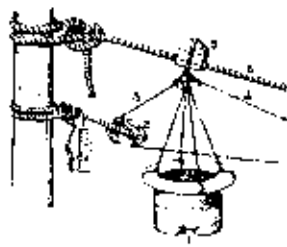
Biohazard
19-999M



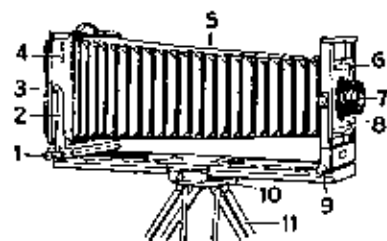
Cathode-ray Tube 4552-ME



Big Gun 4641R-M



Buoys 5338R-ME



Camera 13315-M



Chain Fall
14115-M



Catcher's Mask
14454-M



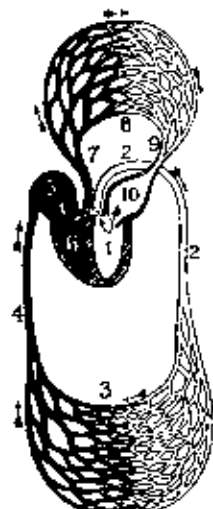
Counter
13960-M



Corvette 47-38-M



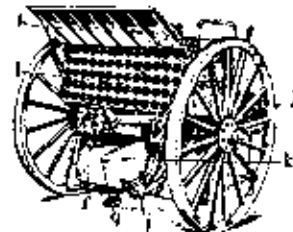
Casters 5454R-ME
Double & Single



Circulation 5624R-ME



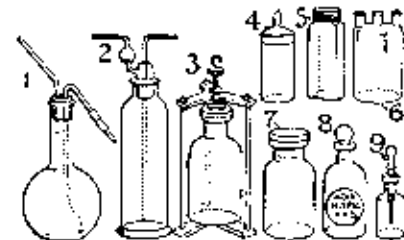
Cipher Disk 5864R-ME



Caisson 5186R-ME



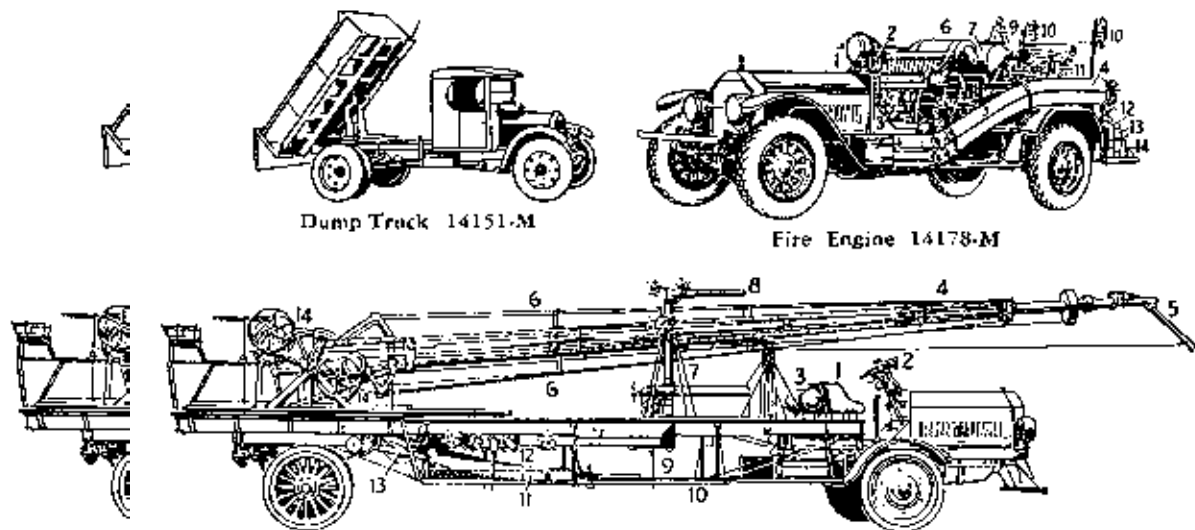
Derby
9114-M



Chemical Bottles 5263R-ME



Diesel-Electric Locomotive 6863R-W



Dump Truck 14151-M

Fire Engine 14178-M

Snorkle Truck 14189-M

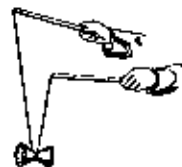


Freestyle 14165-M



Dead Bird 47628-M

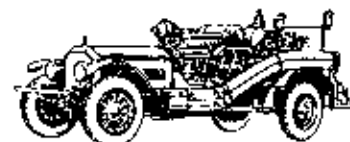
Like a Canary in a coal mine.



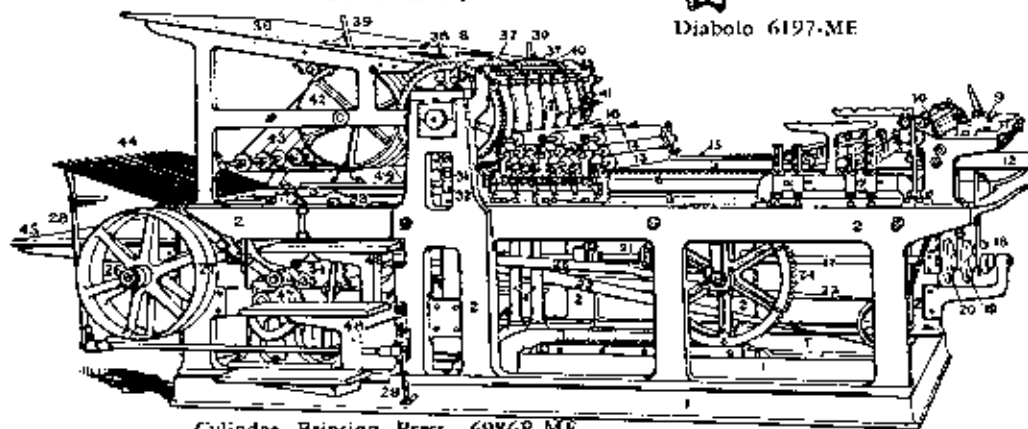
Diabolo 6197-ME



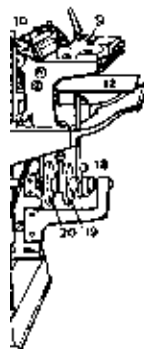
Fishing Lure 14820-M



Fire Engine 9194-M



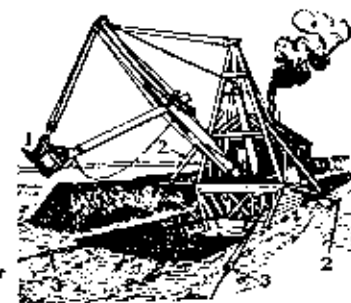
Cylinder Printing Press 6986R-ME



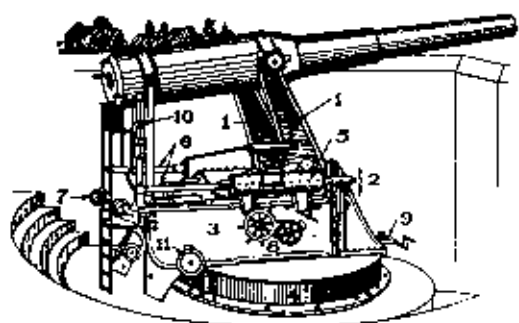
Dynamo 9137-M



Fire Extinguisher 9658-M



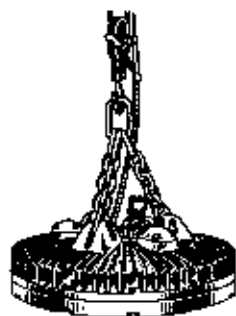
Dredging Machine 6217R-ME



Disappearing Carriage 5865R-ME



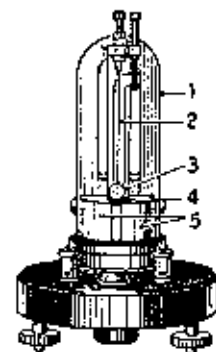
Dunce Cap 58-57-M



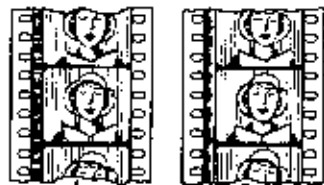
Electromagnet 14589-M



The Four Nelsons 6383R-ME



Galvanometer 1357-M



Film Strip 9194-M



Fallout 1945A-M



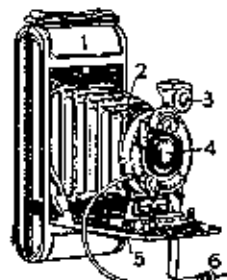
Emmy 1947-M



Fuselage 55-23-M



Flammable 451F-M



Folding Film Camera (Kodak) 9303-M



Foundation 19-69-M



Finger Prints 13900-M
1 Arch; 2 Loop; 3 Whorl; 4 Composite



Flashlight



Flask 14187-M



Flatirons 14184-M
1 Common; 2 Self-heating (Water Heated); 3,4 Electric Irons



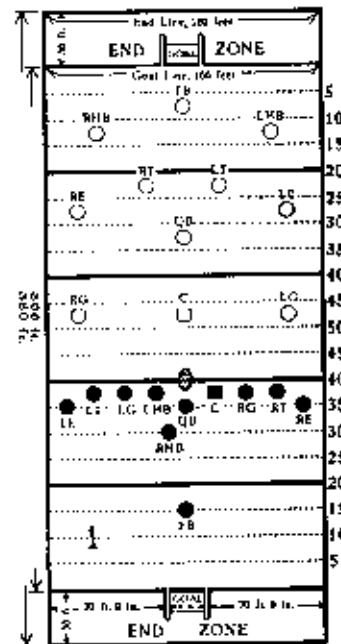
Folding Film Camera (Kodak) 9303-M



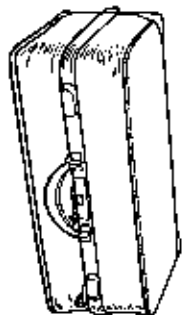
Galosh 53-30-M



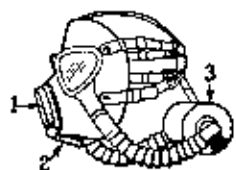
Galosh 53-30-M



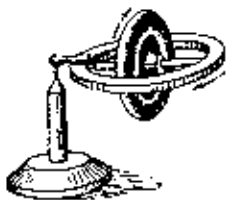
Football Field 7333-ME



Gladstone Bag
1061-M



Gas Mask 47-24-M
2 Outlet valve; 3 Canister



Gyroscope
6299R-ME



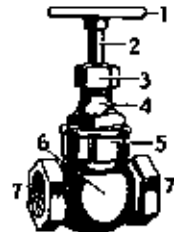
Gerrymander 14341-M



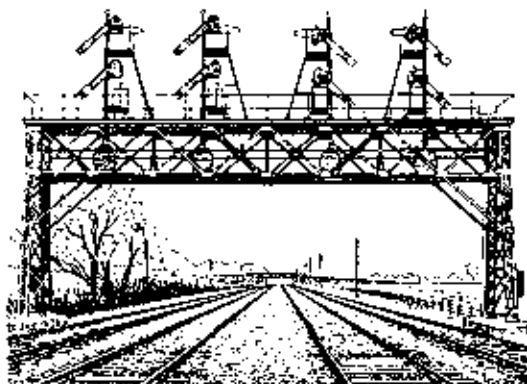
Headphone
54-368-M



Hypodermic
Syringe
9926-M



Globe Valve
14262-M



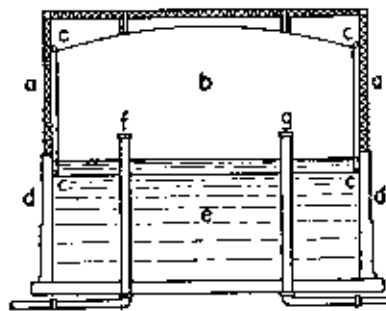
Gantry 6176R-ME



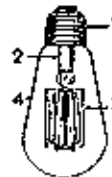
Hockey Sticks
6377R-M
1 Field; 2 Ice



Interrogation Lamp
8838-M



Gasometer 14271-M



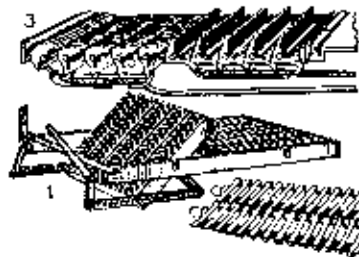
Incandescent Lamp
1 Base; 2 Lead-in
Wire; 3 Filament;
4 Bulb
8335-M



H Pole
6587R-ME



High Powered Rifle 7007-ME



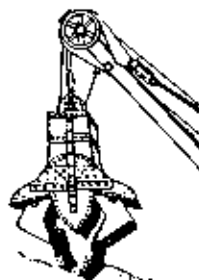
Grates 6401R-ME



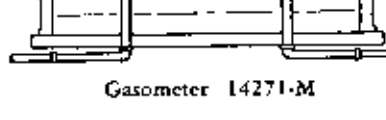
Ginkgo
5968R-M



Gizmo 9771R-M



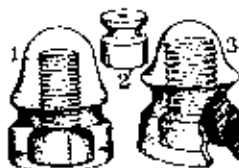
Grab 6275-ME



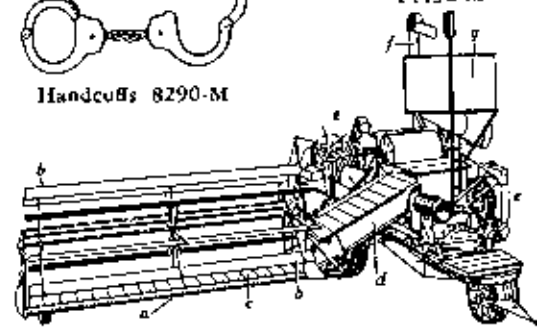
Home Plate
14432-M



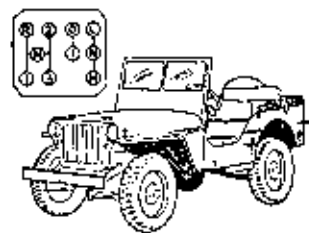
Handcuffs 8290-M



Insulators 6451R-ME



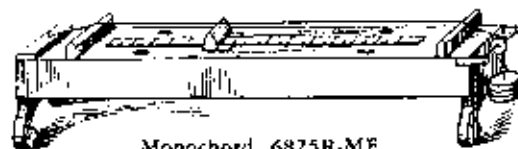
Harvester or Combine 13912-M



JEEP 47-30A-M



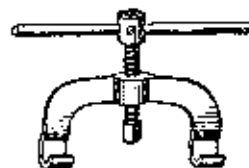
Lebaudy Airship 4949-ME



Monochord 6825R-ME



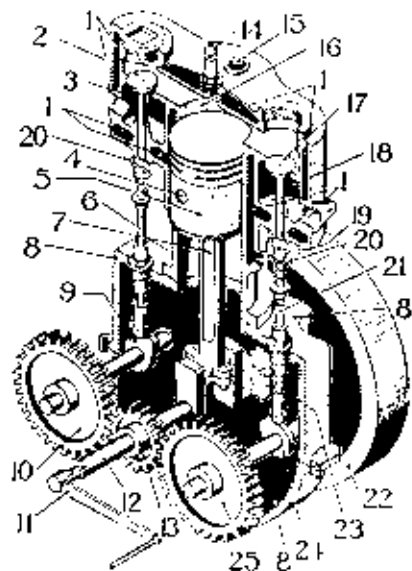
Magazine Plate Camera 5587R-ME



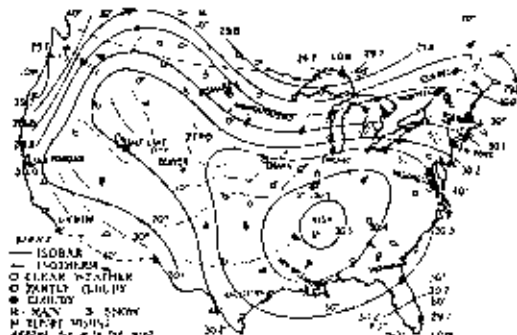
Jim-crow 19-65-M



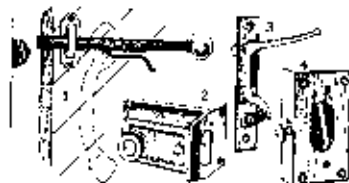
Jumper 1955-M



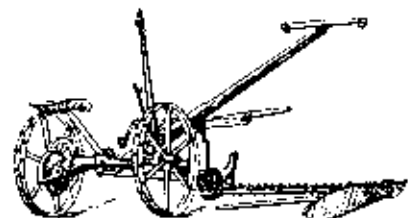
Internal Combustion Engine 6774R-M



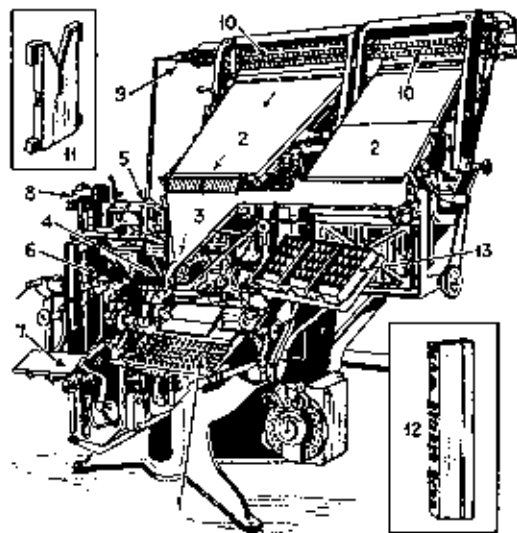
Isobars & Isotherms 6501R-M



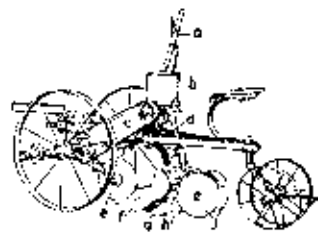
Latches 6585R-ME
1 Thumb; 2 Night;
3 Gate; 4 Elevator



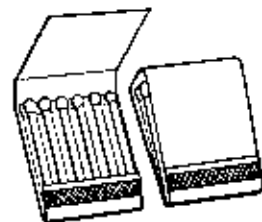
Mowing Machine 6748-ME



Linotype 14421-M



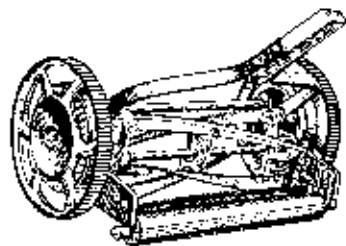
Lister 9860-M



Matchbooks 19-44-M



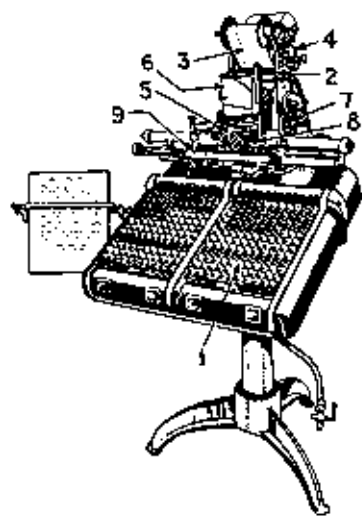
Java Man 14889-M



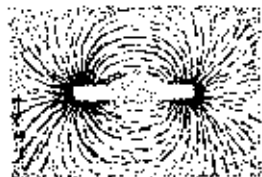
Lawn Mower 6280R-ME



Mattress 8457-M



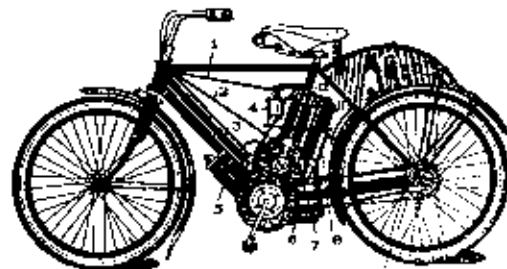
Monotype Keyboard 14646-M



Magnetic Curves
6681R-ME



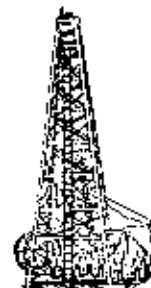
Murphy Button
6911R-ME



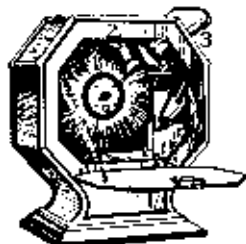
Motorcycle 5593R-ME



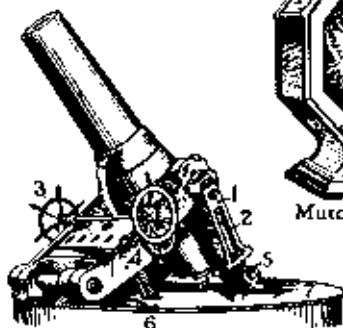
Neck Tie
14188-M



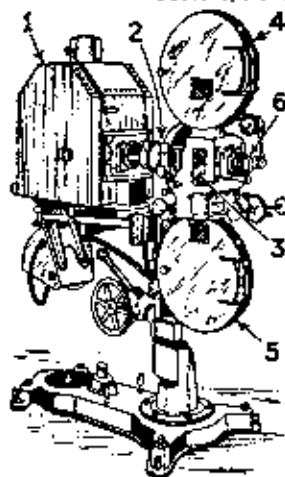
Oil Derrick
4540R-ME



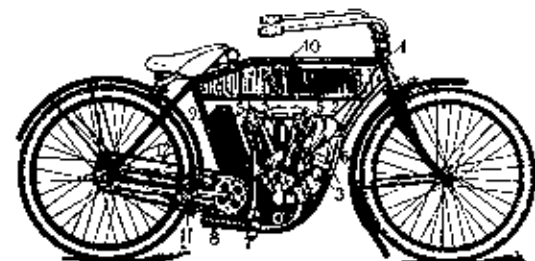
Mutoscope 6751-M



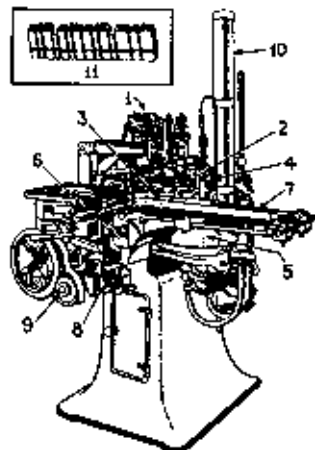
Mortar 5990R-ME



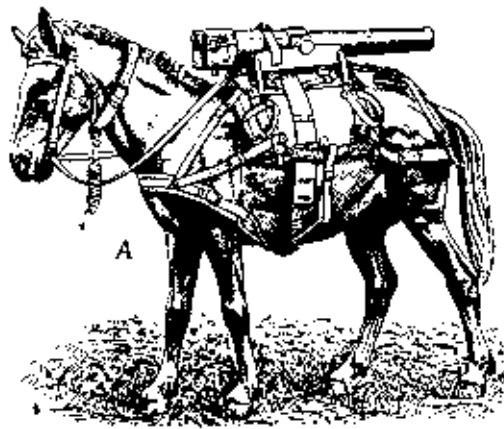
Movie Projector 14425-M



Motorcycle 7281-M



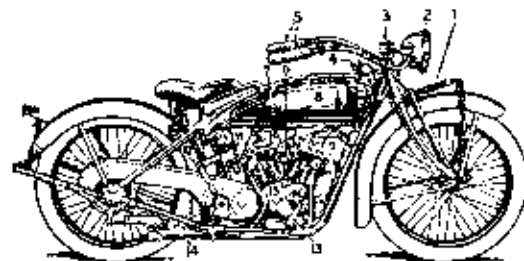
Monotype Caster 1467-M



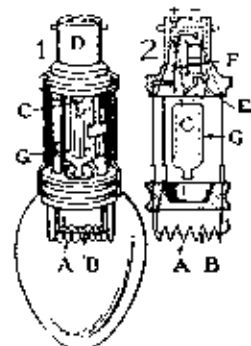
Mountain Artillery 6201R-ME



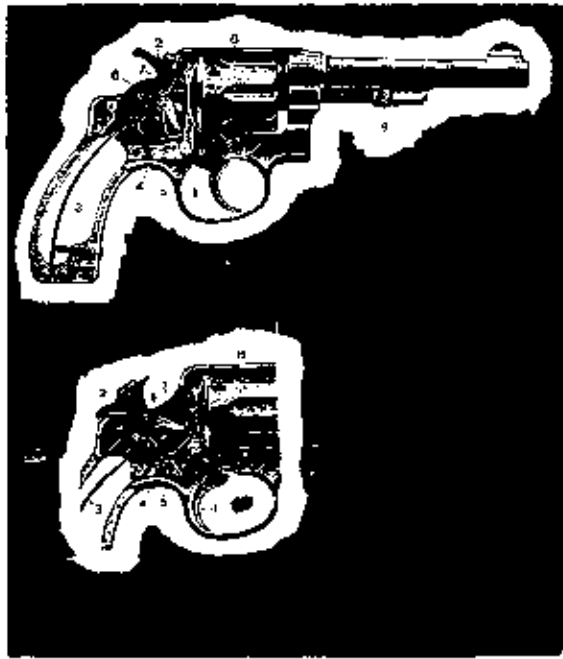
Spectator Pump
9332-M



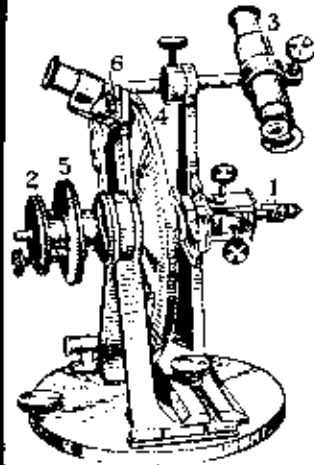
Motorcycle 15305-M



Nernst Lamp 6353R-ME
A Heating coil surrounding
B Filament



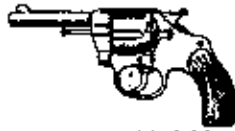
Revolver 7212R-W



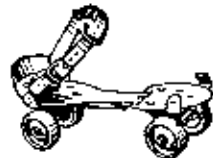
Reflecting Goniometer 6960R-M



Safe 9441-M



Revolver 8840-M

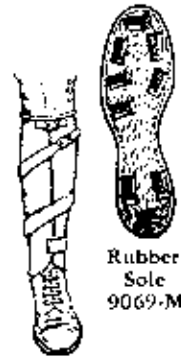


Roller Skate 9529-M



Rifles 47-39-M

- 1 Garand Semiautomatic;
- 2 Springfield;
- 3 Enfield;
- 4 Browning Automatic;
- 5

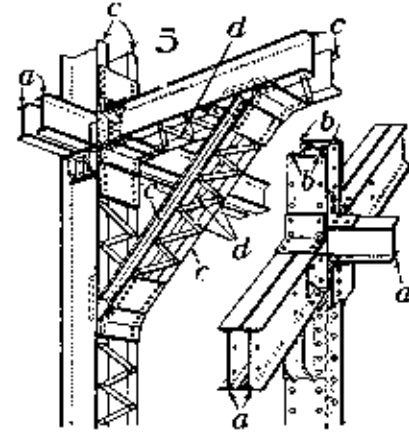


Shin Guard 6870R-M

Rubber Sole 9069-M



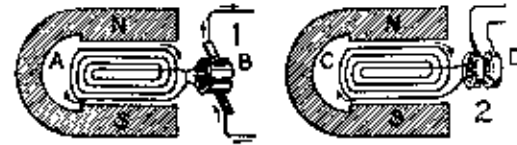
Soldier 13526-M



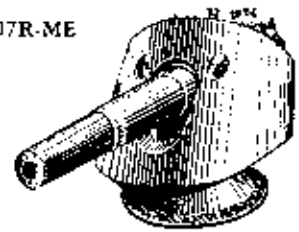
Skyscraper I-beam Construction 6307R-ME
a I beams; b Z sections; c Channel Sections; d Lattice



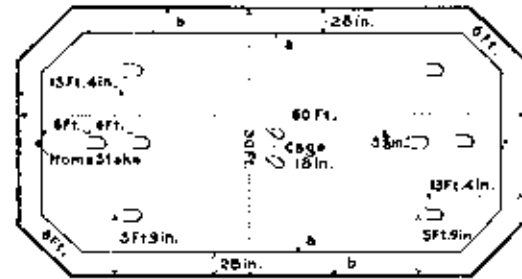
Search Light 2258-M



Simple Direct-Current 6273R-ME



Shield 7084R-ME



Roque Court 7099R-ME



Soldier No. 2 13907-M



Snap 9317-M



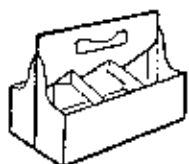
Shoe Tree 5487R-M



Soldier No. 3 14013-M



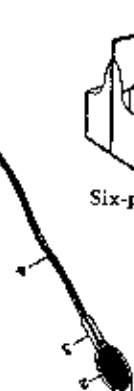
Spark Plug 7117R-M



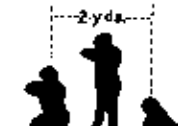
Six-pack 33-33-M



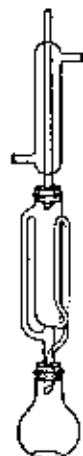
Spark Plug 9565-M



Target 7157R-M



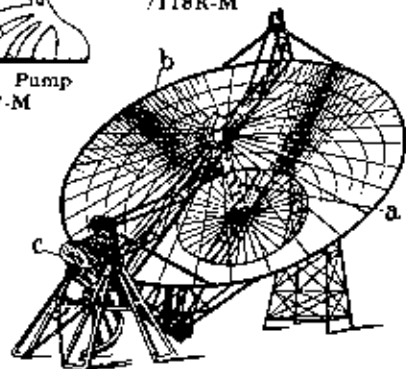
Sperm 7118R-M



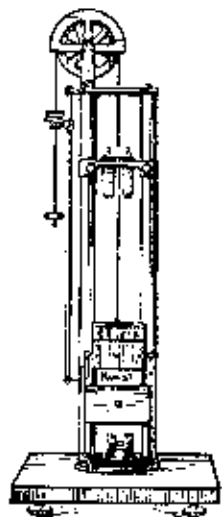
T-Strap Pump 9437-M



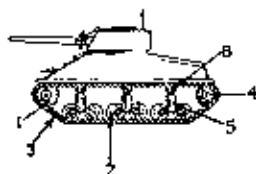
Soxhler Extractor 15072A-M



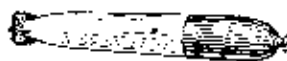
Solar Engine 7113R-M
a Boiler; b Reflector; c Tracking device



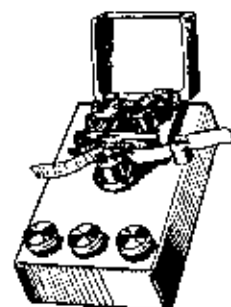
Tachitoscope 6871R-ME



Tank 47-50-M



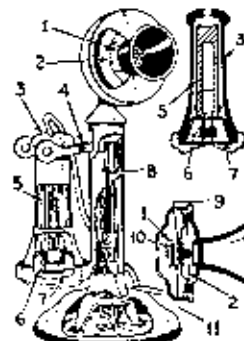
Torpedo 9246-M



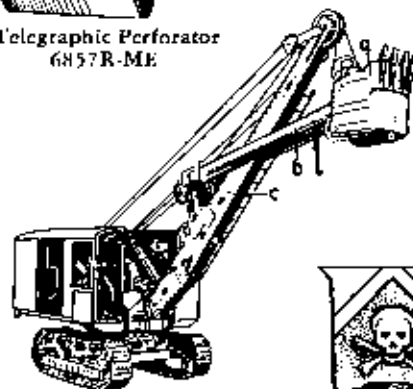
Telegraphic Perforator 6857R-ME



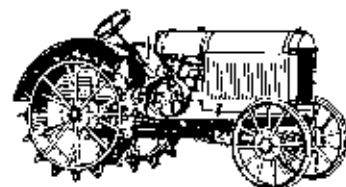
Swan Dive 14150-M



Telephone 9884-M



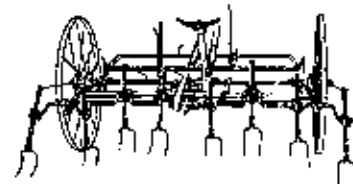
Steam Shovel 14015-M
a Bucket; b Boom; c Swing-arm (Mary-Ann? Mother? Snore!?)



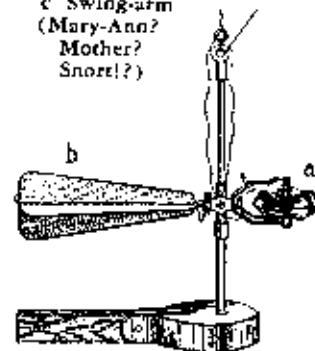
Tractor 14003-M



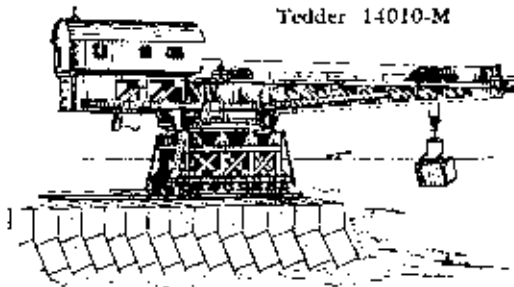
Toxic Waste 19-73-M



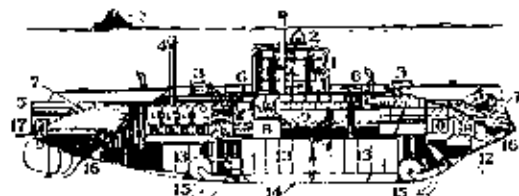
Tedder 14010-M



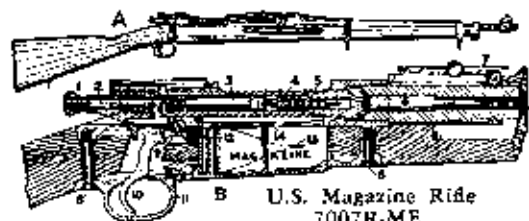
Tachometer 6839R-ME



Titan Crane 7004R-ME



Submarine Torpedo Boat 6412R-ME

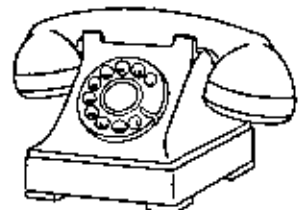


U.S. Magazine Rifle
7007R-ME

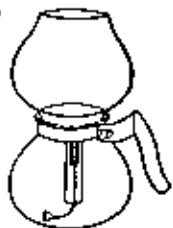
Cut-away shows cartridge in firing position



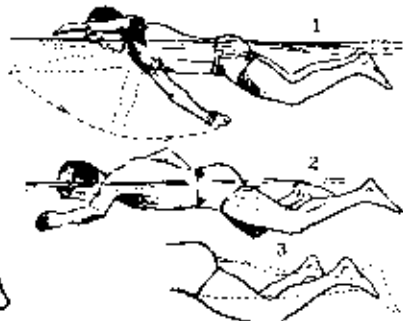
Water Ski 8921-M



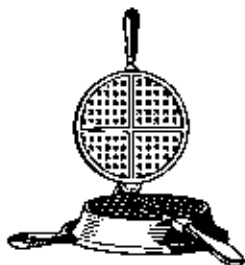
Telephone 4758-M



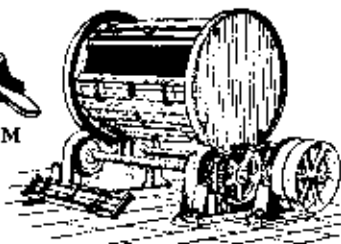
Vacuum Coffee
Maker 8-JF-M



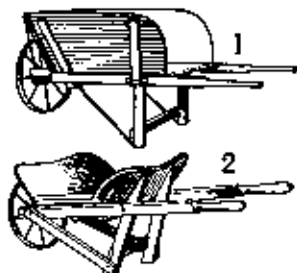
Trudgen Stroke 5711R-ME



Waffle Iron 9408-M



Tumbling-barrel 6706R-ME

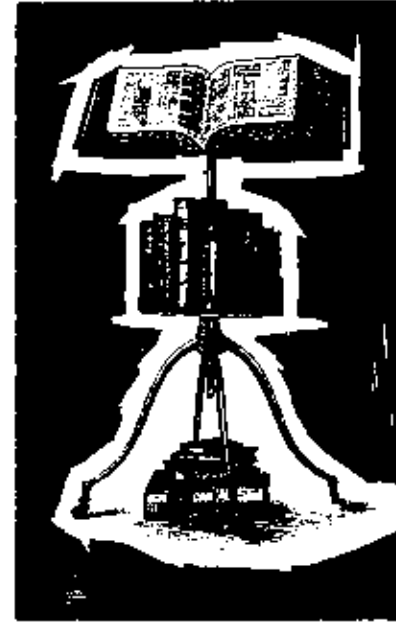


Wheelbarrows 9517-M



Zeppelin 7300R-M

The End



PANCREAS

(Carrot or Stick)

PRODUCTION NOTES

ESSAYS

BIBLIOGRAPHY

AND SO MUCH MORE



Manuscript appears on the underside of engravings from the 1859 and 1864 *Webster's*. Most blocks bear the name of the image illustrated and the source from which it was copied. Crabb, Fairhole, Wood's Botany, Francis are commonly cited names along with Tomlinson and the *English Encyclopedia* noted above. *Tephrosia* (above) was used in the 1864 but was copied from the 1859 *Webster*. Roman numerals were used to identify pages in that section as it was a last minute addition.



The images John Andrew engraved for the 1859 edition were copied from the *Imperial Dictionary* as was the Friction wheel (above). Palmetto exhibits the only known palimpsest in the manuscript. It is always interesting to find those unusual aberrations. Similarly, there is something pleasurable in finding examples of unnecessary embellishment as these on the Friction-clutch and Tassets engravings. Lobster, copied from Edwards, appears in the 1864 *Webster's*. The metal electrotype of this image appears at the base of the facing page. Notice how the block was cut to allow for more text. (The second antennae broke off this block.)



Blocks from the *International* rarely have markings on the bottom. This engraving (left) has a squiggly pencil mark and lines from the machining process. It also has a stamp from "A. P. J. & Co. 28 Beekman St. N. Y." The last images are of old "underlay" removed from the engravings showing printed matter and masking tape (center block). The tall image shows my own underlay for an electrotype of a pine tree.

NOTES & COMMENTARY

The component of this project missing from the printed pages of the book is the physical engraved block. Page 439 contains representations of the blocks to give the reader a sense of what the original blocks are like. The image opposite showcases some of the manuscript and the old underlay that was formerly stuck to the bottoms of the blocks. There is also an example of the underlay I did to fill in an electrotype that had begun to sag in the center of the image. The second page primarily shows scans of the tops of engravings.

While cleaning the old underlay I discovered manuscript on the bottom of the old blocks, written beautifully and clearly in various shades of blue or sepia ink. The text usually names the image and cites the source and page from which it was copied. It was hidden

by old underlay. This manuscript thrills me as it provides a further sense of the hand of the engravers.

The black line blocks are like little sculptures. The wood has become blackened from the applications of graphite used in the electrotyping process. The new school blocks from the *International* leave the wood surface of the surrounding block intact save for a border just around the image. This uncut surface area would print as what I term a "black field," and further explanation of this may be found below. What is fascinating about the blocks reproduced here is that many retain photographically transferred imagery. The additional scenery gives an idea of the source material for many of the images. It is interesting to think about what the engraver W. F. Hopson chose to keep in an image.

PICTORIAL WEBSTER'S

For some birds he kept the branches upon which they were perched and for others he didn't. Was he making choices based on artistic considerations, size, or time, or was it mostly a function of what he enjoyed engraving?

ORIGINAL WEBSTER'S PRODUCTION

It has always been my hope that I could put faces to the men and women who created the engravings printed in this book. John Andrew (1815–1879) and his shop made the engravings for the 1859 and 1864 *Webster's*; William Fowler Hopson (1849–1935) engraved the 1890 *International*. There is scant mention of other engravers involved with the project, although there are letters by Charlotte B. Cogswell that indicate she may have made some engravings for the 1864 *Webster's*.

John Andrew was an influential engraver. His son mentions in a letter that he “introduced bolted blocks for large newspaper cuts and was the first to use photography for enlarging and reducing on the wood. And although a good businessman, he was a strong, original, and very rapid workman.”

George and Charles Merriam relied on John Andrew to be more than a mere copyist. In the preface to the 1859 *Webster's* they refer to him as a “skillful artist.” We can see proof of this in the financial arrangements for that book. For the first group of engravings made for the 1859 edition he was paid \$1.24 per engraving. He complained it did not cover the cost to square up such small blocks and if the Merriams wanted high quality work they would need to pay him at least \$1.50 per engraving. In subsequent shipments they did, and for the original State Seals and Races of Man he was paid up to \$14 per engraving. There is more evidence of his artistic input from his letters to the Merriams while engraving the 1864 *Webster's*. He makes numerous suggestions of engravings he believes could be improved in the new edition. In one letter he writes, “I think you had better let me do you new cuts [for] ‘Abbey’ ‘PineApple’ & ‘Acorn’ . . . the style is not good.” He also requests a copy of *La Chartre* so he can make a better engraving for “Fandango.” Andrew obviously took great pride in his work. In one instance he requests to buy back some of his engraved blocks of



Penguins from 1859 with chalk in lines. (Actual size)



Edge of Penguin engraving showing sculptural relief.



The typeface suggests this die stock may have been taken from a manual or catalog. (Actual size)



It is uncommon to see the name on the side of engravings for the *International*. The 1204R appears on the electrotype made from this engraving.



Quesal much enlarged to show off remaining photographically transferred imagery. Notice the reverse text caption at bottom. The fine lines of this image suggests it was a metal engraving.



Sola contemplates the beauty of negative space.



The circle at the top of this engraving is a plug that was put in the block to repair an imperfection before the engraving was done.



Turtledove with additional transferred imagery surrounding engraved portion. (All images in this column are shown at their actual size.)



At left is a photo of a block from the 1890 *International*. The above photo of Crustaceans shows the variety of engravings. The drab crab on the far left is a magnesium cut, while the copper electrotypes have many hues. The bright copper lobster has its original wood engraving on the far right side of the image. The dark wood engraving (left center) is from the 1864 edition.

fishes copied from Yarrel's *A History of British Fishes*. (Interestingly, some of the fishes in that book were copied directly from the "father of wood engraving," Thomas Bewick, an engraver with whom Andrew was sometimes compared.) In another he remarks that if they feel he has sent any bad engraving they should "throw it out at once." To give a better sense of this artist and printer I leave you with these remarks from his son:

He was a free generous man and made friends wherever he went. He was always cheerful and bore up under reverses that would have broken a weaker man down.

The other letters I have seen are from Charlotte B. Cogswell, who explains why she was late in completing the engravings she promised to the Merriams. But I have no confirmation that she was working on the *Webster's*.

William Fowler Hopson played an enormous role in the look of the *Webster's*. Beyond being a talented new school engraver who began his career by engraving the new images for the 1890 *International*, he also had an exhibition of his bookplates at the Library of Congress in 1929. Hopson's engravings

are interesting because he carved his name in a handful of them. Why would he do this in a reference book? Was it because they were original drawings, perhaps, or was it because he was especially proud of these images? Engravings with Hopson's name carved in them are Stalactites and Stalagmites (342), Surf Duck (349), Toboggan (364), and Widgeon (400).

The evolution of the binding process of the *Webster's* mirrors that of the Industrial Revolution. Binding the *Webster's* was done by binderies separate from the printers in the 1859 edition. The work was almost all done by hand. A Mr. Matthews is mentioned in the Bienecke Archives. The 1864 *Webster's* begins the same way with Matthews binding the finer calf versions and a Mr. Reynolds binding the rest. But orders were far greater than the binders could keep up with and Matthews was busy binding some encyclopedia, so Henry O. Houghton, who was the owner of the Riverside Press where the massive 1864 edition was being printed, decided to take fate into his own hands and create his own bindery. He suggested this idea to the Merriams in a letter dated August 3, 1864. Because of

the massive drain of workers caused by the Civil War (John Andrew suffered with this problem, too; at one point he mentions losing four engravers to the war), H. O. Houghton sailed to England to recruit able bookbinders to help him reach his goal of completing 100 *Webster's* a day. From the G. & C. Merriam Archive in the Bienecke Library at Yale, one can find how they accomplished this. In folder 641 is described the "number of persons required to make 100 *Webster's* dictionaries per day": 20 people made the paper; 4 tanned the leather; 15 were paid for printing; 56 were employed with the binding, 32 women did folding and sewing, while 24 men marbled the edges and performed the other tasks of binding. H. O. Houghton's letters show a great sensitivity to design and excellence of production that make it clear why Riverside Press was such a success. The 1864 *Webster's* (then the "largest single volume ever made in quantity") has more than 100 sections that were hand sewn by twos onto single raised cords. But the 1890 edition was produced more cheaply than the 1864 because it was machine sewn. (A copy of the 1864

dictionary bound with sheepskin cost G. & C. Merriam Co. \$4.46 to produce, and the 1890 bound in sheepskin cost \$2.03 to produce.)

BLACK FIELD BLOCKS

The most curious and visually striking engravings in the *Pictorial Webster's* are those surrounded by black. It makes them appear almost as negatives. This black area is the surface of the block that was not engraved. These were used to produce the *International Dictionary* in the 1890s. (The large Revolver on page 428 from the 1909 edition is an exception.) It was not an efficient use of the engraver's time to carve away the excess surface, as electrotypes had been made from these blocks for purposes of printing the edition. It may also have been easier to make an even wax impression of the block with the extra surface area.

Often in *Pictorial Webster's*, an original wood engraving is printed on the same page as the electrotype. This was done for the beauty of the repeated image and for purposes of comparison.

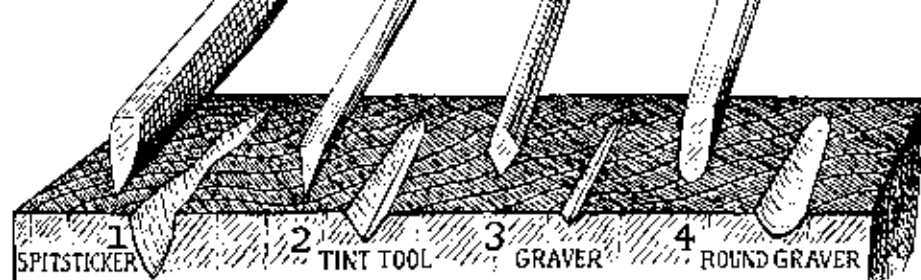
INDEX NUMBERS

Another most curious aspect of the book may be the numbers accompanying the title of every image. *Pictorial Webster's* reveals these numbers to the public for the first time. As explained in the Key, the digits (letters and numbers) following the dash have been inserted to give extra information to the reader. The other numbers were stamped into the sides of the engravings with a steel number punch as part of an indexing system used to organize them. Each edition uses a different starting point for the



numbering but the engravings appear to be numbered in series according to where they would appear in the dictionaries. Most of the engravings also have an "R" at the conclusion of the index number, the exceptions being the wood engravings from the *International* editions. My best guess is the "R" signifies "Recut" or "Reproduction." Another possibility is that the R stamp indicates Riverside Press, where the dictionaries were printed. Some of the images have a double "RR," which indicates they are photo-etched reproductions.

Sometimes many images would be engraved into a single block. These were reengraved either to update the older version or because the old image no longer printed well. Presumably, the electrotype would be the size of this entire block. That sheet of copper would then be backed by hot metal (a mixture of lead, tin, and antimony) and mounted on a block of wood to be type-high and only then cut apart with a saw to make individual blocks. The Cup is intriguing, as instead of a number written on the side of the block, there is a question mark. Unable to find an image of this cup in the



Webster's Dictionaries, one might suppose it was just a "doodle" by W. F. Hopson, who decided to immortalize his coffee cup on a blank space of boxwood, and 100 years later this printing does just that.

THE TOOLS

Some engravings made for electrotyping reveal practice marks made by the engraver. This Night Heron (left) has wonderful examples of marks made from at least four different tools. Careful study of the block reveals what tools were used. Indentations in the wood at the start of the cuts made by the shaft of the burins behind the cutting edge indicate that all of the practice marks started at the top of the block with the tools being pushed toward the bottom. The direction of the cuts is helpful as the shape of the burin, revealing even in a print the type of tool used.

1. SPITSTICKER. The marks on the left side of the printed image were made by a spitsticker. The largest supplier of engraving tools in America, E. C. Lyons, calls it an elliptic tint tool, and their #3 size fits into these marks. Spitstickers have sharp tips and curved sides. They can make lines of varying widths, and make curves quite readily. The engraver began these lines with the point just breaking the surface of the block but then would push the tool deep into the block as it was moved along. The tool was too deep to cut a clean edge and the width of the line wavers as the tool rises and falls in depth. The spitsticker was leaned over as it was brought back to the surface to finish the leftmost line, while the blunt end of the second line indicates the tool was leaned forward, brought to a stop, and the wood curl was brushed or planed away. The long white neckfeathers that come down the back of the Night Heron were engraved with the spitsticker.

2. **TINT TOOL.** To the right of these lines are two lines made by a burin corresponding to an E. C. Lyons #3 tint tool. Tint tools have straight sides for making straight lines to build up tones by making multiple parallel lines. Properly used, they should not vary in depth nor in the width of line they create. The tip of the tint tool was wider and the angle greater than that of the spitsticker, thus the channel is less deep with a less sharply angled bottom. The vertical cross-hatching lines on the ground were made with the tint tool as well.

3. **GRAVER.** The graver is the workhorse of engraving tools. It is shaped like an elongated diamond. It is extremely versatile and presumably was the most comfortable tool in a nineteenth-century engraver's hand. The fact that the width of the thin lines on this block vary slightly makes it more likely that they were made with a graver rather than multiple tiny tint tools. It appears that some of the larger marks may have been made by working into thin lines made first by the graver. The thin lines on the Heron making

up the back feathers, the beak, and the round eye would have been made with a graver as well.

4. **ROUND GRAVER.** Round graver is the name E. C. Lyons gives for the burin with the curved profile. A Lyons #54 round graver fits neatly in the wide cuts on the right of the practice area. This large burin may have been used to clear out the white area just below the beak and eye of the Heron and was certainly the tool used to carve the wood away from the edge of the image.

ANDREW'S WIGGLE

In preparing his address "Wood Engraving and Wood Engravers" for the Society of Printers, Boston, Hiram Merrill wrote:

A wavy line, dating back to Bewick's time or earlier, was too often used by the engravers in John Andrew & Son's engraving shop in Boston, where I served as an apprentice. It was called the "Andrew's wiggle" by those inclined to be critical.

This comment is interesting as it

gives the viewer something unique to look for to identify engravings by John Andrew. But what is this Andrew's Wiggle? Is it wavy lines one often sees used in backgrounds of engraving, similar to the wavy lines in the wallpaper of the Easel engraving? Or is it something more like a squiggly drawn line as seen in the shadows in the bottom-right area?

Many of the engravings from the 1859 and 1864 editions have a similar "squiggle" or "wiggle" in areas of shadow, but the squiggly lines on the bottom of the Amphitheater engraving on page 9 might be the best example in the book. The "wiggle" is somewhat of a virtuosic flourish that would require an extra



Engraving at the Easel

burin to make the curved lines, and must have taken more time to execute. It is tempting to imagine the artist sitting at the easel is none other than John Andrew, who eschews painting the female nude for something resembling a Rembrandt self-portrait.

PICTORIAL PROGRESSION



While some dictionaries evolved to using photographs to illustrate entries, the trend in *Webster's* went the other way. The early illustrations place every entry in a context. In the 1859 edition all the zoological entries are shown in a habitat, all instruments are being played, and most machines are in use. Even fish were depicted beached on the shore. The engraving of the sea lion shown here is

one of my favorites. It appears as if the artist merely placed the head of a lion on the body of a seal.

By 1864 the engravings are smaller, and the background is scaled back, but most images are still given an atmosphere. Even inanimate objects such as compasses (page 77) are rendered with shadows as if they march across a page. People are included for scale and for context. (See the man by the Sperm Whale on page 335 or the person being led toward the guillotine on page 167.)



Tubular Bridge 3651R-M4



Tubular Bridge 5430R-ME

This extra information often contains nineteenth-century references, which enhance an image. The gravestones would identify the tree on page 400 as a yew, as yews were common in old cemeteries.

The trend in the Webster dictionaries to strip the image down continues in the *International Dictionary*. Interestingly, even as changes in styles led to more photo-realistic images, the illustrations become more solely of the things themselves. The two engravings of the tubular bridges illustrate this trend.

Likewise, in the 1864 edition, the Colossus of Rhodes on page 76 had more of Rhodes in the background. Once we get to the “&” section of images from the twentieth century, one can see that except for a few images like Gantry, the illustrations have adopted an extreme economy of line. The human form even becomes disembodied. Foundation on page 419 is a prime example, an undergarment on an implied female torso with no head or limbs. The hamster at the bottom of the page never made it into a *Webster's Dictionary*.



There is a short note in the case in which it was found. It explains that while the cut was at the engravers, the editors made the decision not to use it. Perhaps the editors decided people knew what a hamster looked like, or they deemed it to be too stylized to be of use.

There are a great number of smaller engravings, such as this Trident and Fasces that appear to be smaller versions of larger engravings. See the larger fasces on page 119 with the word “fascist” printed below. The fasces (axe-head coming out of a stylized faggot, a name I became familiar with in the fourth grade: “No, I am not a bundle of sticks.”) was a symbol for Mussolini's fascist regime in Italy. The tiny trees on page 361 are good examples of the small-sized engravings. Many of these have the letter “C” written in pencil on the bottom of them. My guess is it indicates that they were created for the first illustrated *Webster's Collegiate Dictionary*.

SPECIFIC NOTES ON ENGRAVINGS AND ERRATA

In the first pages I capitalized the species name of an animal named for a person or place, such as the *Alligator Mississippiensis*, as was the nineteenth-century convention. I soon decided I should follow modern convention of only capitalizing the genus. So, the trilobite *Calymene* named for Dr. Blumenbach, I presume, should read “*C. blumenbachii*.” I did not look up any of the current scientific names for species.

PAGE 8. The Alpaca has what appears to be an unrelated white circle in the design. The circle is from a plug that was put in the block to fix irregularities during the finishing process of the block, not after the engraving had begun. It is quite likely that the second version of the Fins engraving was made due to the problems the plug may have caused in printing. The plug would have been completely flat at the time of the initial printing, but the swelling and shrinking of the wood due to fluctuations in humidity may have caused the plugs,

which are tapered and widest at the top, to work their way out. The reason the circle doesn't show up the same in all of the copies of the book is that over the course of the print run the plug was pushed back into place and the halo around the raised plug disappeared.

PAGE 9. How many eyes do you see in the illustration of the American? Is there a phantom eye to the left of the true eye on this image?

PAGE 44. Engraved in maple, the Bison is my first copy of an old engraving.

PAGES 62 AND 63. The two engravings of Castle talk to one of my fascinations with the project. When I was young, my family visited Great Britain. I remember being terribly confused because I was never sure whether a castle was a "real" castle or not. Many of the real castles are in ruins or are only towers whereas some buildings were built in the style of a castle, and look far more perfect than any of the real castles. Furthermore, could a castle be real if it had never been the site of a battle? So which is the real Castle engraving?

PAGE 82. The corner of the copper of this electrotype was folded over on itself. I carefully folded it back so that it would print, and that accounts for the interesting texture of the upper left corner.

PAGE 246. The Notes are actually Rests.

PAGE 334. The little "sc" carved after "Hopson" on stalactites and stalagmites or on Toboggan Slide (p. 364) stands for sculpsit, meaning "engraved" or "carved."

WEBSTER, G. & C. MERRIAM, AND THE ILLUSTRATED DICTIONARY

When performing dreaded vocabulary assignments as a child, trolling endlessly through the pages of a dictionary, the interesting pictures seemed my only source of comfort. Images weren't always included in dictionaries, though. After their heyday in the late nineteenth century they have been in steady decline, and children now search for definitions by inputting words into a computer search field. But far from being a mere footnote to the history of lexicography, visual and literary illustration helped create the shape and character of the twentieth-century dictionary.

Samuel Johnson revolutionized dictionaries in the 1750s with the introduction of literary illustrations. The chief glory of his book is derived from these rich phrases which show how a word is used. Nathan Bailey printed

the first dictionary with images in England in the 1720s, but pictorial illustrations only emerged in earnest in the mid-nineteenth century as technology allowed, and as developments in science, exploration, and technology created thousands of new terms needing illustration. Webster's dictionaries mirror the greater story of dictionary illustration: Noah Webster followed in the footsteps of Samuel Johnson, while George and Charles Merriam made Noah Webster's work popular with a wider audience by introducing pictorial illustrations. G. & C. Merriam would further shape the content and structure of Noah Webster's dictionary into the great unabridged dictionary we see on library stands today.

The dictionaries of both Samuel Johnson and Noah Webster enjoy public veneration that differs from the

appreciation one gets after some study of the books. Both books have amazing idiosyncrasies and ridiculous shortcomings. Upon reading the fantastic preface of Johnson's work and a great number of his entries, I came to the conclusion that the reason his dictionary is so adored is because it is a work of literature. Johnson's flair and his use of artistic license make it a wonderfully entertaining book. Johnson frequently changed the material he quoted to satisfy the needs of his definitions and for ease of reading. And he inserted many of his own quotations as well. (I have come to think of Johnson's book as the first Artist's Dictionary.)

In 1828 Webster also single-handedly compiled his *American Dictionary of the English Language*. Johnson's and Webster's choice of quotations not only conveyed their distinct personalities, but also the moralistic and religious undertones many discern in the two books. Just as Johnson's use of English authors gave his book a nationalist aura, so Webster's choices of authors gave his dictionary an American feel. In his introduction, Mr. Webster quoted Johnson that "the chief glory of a nation

arises from its authors." And went on to say that "it is with pride and satisfaction that I can place [Franklin, Washington, Adams, Jay, Madison, Marshall . . .] as authorities, on the same page with those of Boyle, Hooker, Milton, Dryden, Addison. . . ."

Literary illustration found its ultimate expression in the *Oxford English Dictionary*, one of the most lavishly "illustrated" books ever made, as literary illustrations are supplied for each variant usage of a word.

Nathan Bailey's dictionary was way ahead of its time when the first edition came out in the 1720s. Bailey added accents to words to help with pronunciation and included common words that would be helpful to the general public. And, of most importance to Webster's dictionaries, his started the encyclopedic trend by including mathematical terms, as well as heraldic shields, accompanied by engraved illustrations. (The geometric and heraldic images made his the first illustrated English-language dictionary, and I believe the illustrations should be given partial credit for the fact that his was the most successful eighteenth-century English dictionary.)

In 1851, when wood engraving had become widespread making book illustration more accessible, another British dictionary, the *Imperial Dictionary* by John Ogilvie, became the next to include pictorial illustrations. While Bailey had hundreds of images in his dictionary, the engravings in the *Imperial* numbered in the thousands, and the scope of the dictionary was broadened to encompass upwards of 20,000 new scientific and technological terms. The core dictionary was not written by John Ogilvie, but merely lifted from the 1841 *American Dictionary of the English Language* (the last edition updated by Noah Webster). Webster's heirs were powerless to do much to stop the widespread pirating of Noah Webster's dictionary and name Webster. But Ogilvie was soon to discover that borrowing could go both ways across the Atlantic.

First, *Webster's Dictionary* would have to come under the direction of George and Charles Merriam, who bought the rights to Noah Webster's work after his death in 1843. Printer publishers with a wide range of publications under their belt, after taking up

the reins of Noah Webster's dictionary, G. & C. Merriam would be henceforth consumed with making dictionaries and preserving Webster's legacy. They took what was then a double volume selling for \$15 and made a single volume to sell for \$6, a more affordable price that greatly boosted sales.

And G. & C. Merriam had made a powerful move making the book into a single volume. I believe it was this development that led to the single-volume dictionary as the primary library reference tool. Until this development, all serious dictionaries were multivolume works. The choice to keep the dictionary a single volume would create a limit to the amount of information it could hold. A dictionary might tend to the encyclopedic, but because it could only be one volume, it would always retain the quality of a dictionary.

It is largely forgotten now, but in the mid-nineteenth century, while the country was divided over issues of slavery, there was another great division between two Massachusetts dictionary makers: G. & C. Merriam Co., of Webster fame, and Joseph Worcester, maker of *Worcester's Universal and Critical Dictionary*.

College students across the Ivy League would wage late-night discussions weighing the merits of the two references.

The old Harvard-Yale rivalry played into this as well: Harvard presidents endorsed Worcester, while those at Noah Webster's alma mater, Yale, generally backed Webster. The editorial pages of newspapers printed scores of letters citing the merits and failings of both books. The press of the time fanned the flames by dubbing the rivalry the "War of the Dictionaries." Worcester made a decision in the 1850s that upped the ante. In order to make the better dictionary, the Worcester Co. planned to print the first illustrated dictionary in America. Somehow the *Webster's Dictionary* people gained wind of this, and in 1857 an interesting turn of events took place.

Early that year, the Imperial Dictionary Co. responded to a request by G. & C. Merriam Co. to purchase the distribution rights of the *Imperial Dictionary* in the United States. This would seem to make sense as, without much extra work, G. & C. Merriam Co. could publish what was basically their own book with the addition of

illustrations. In a setback, the District Court Judge of New York ruled that such an agreement would make null and void the G. & C. Merriam Co. claim on the copyright of Webster's dictionary. He opined if they sold the *Imperial Dictionary*, it would amount to selling a pirated copy of their own work.

This ruling would eventually lead G. & C. Merriam Co. to take the high road and move away from the legacy of Johnson and Webster by hiring Noah Porter of Yale University to update, edit, and help create the first great modern dictionary, the 1864 edition of *An American Dictionary of the English Language*.

In the meantime, G. & C. Merriam had to win the "War of the Dictionaries." So they hired British-born wood engraver John Andrew to copy the majority of the engravings from the *Imperial Dictionary* to include in what would become the first illustrated American dictionary, the 1859 edition of *Webster's Dictionary*. (Ironically, John Andrew was also hired to make the engravings for *Worcester's Dictionary*.) John Andrew started engraving the first section of images from the *Imperial*

Dictionary in Boston, in October of 1857 and completed copying 1,327 images by May 24, 1858. L. Johnson & Co. produced 35 state seals for the edition as well. The problem was there was not time enough to reset the text of the dictionary to include the images with the definitions they illustrated, so they were included in the front of the dictionary in a pictorial section, with the introduction attempting to provide an unconvincing excuse for this organization. This solution might not have been the most useful for the book as a reference tool, but it was a huge hit with the public. In effect it was an 80-page picture book at the start of a weighty dictionary. The section proved to be such a great selling tool that G. & C. Merriam Co. retained the illustrated section in subsequent dictionaries, in which each image was printed alongside the appropriate definition and also included in a pictorial section in the back of the book. This illustrated section was sent to booksellers as a sales tool and was perpetuated until the *Third Edition* came out in 1953.

The popularity of this illustrated section in the Webster's dictionaries surely helped G. & C. Merriam Co.

win the sales battle with Worcester. And if one compares the quality of the illustrations of the two books, the 1859 *Webster* images are far more interesting. Each engraving in the 1859 *Webster* is larger than what would appear in subsequent editions, and each image is part of a scene. There is not merely an image of a guitar, but of a woman playing a guitar. *Worcester's Dictionary* has wonderful images of the heads of birds, but most people do not identify birds by the head alone. And these bird heads tend to be the largest of the images. The other engravings are small and lack the visual impact of the images found in the Webster dictionary.

The 1859 edition came out mostly as a counter to the threat of Worcester's dictionary, but after the 1864 edition came out G. & C. Merriam Co. won "The War" and Worcester's name began to fade into obscurity. The Webster dictionary of 1864 was a comprehensive, well-planned and well-executed encyclopedic reference. The illustrations were now included among the definitions, and though they are smaller than those found in the 1859 edition they are beautifully engraved and generous in number.

G. & C. Merriam chose Riverside Press, run by H. O. Houghton, to print the 1864 *Webster's*. Riverside had also produced the 1860 *Worcester Dictionary*, and in letters H. O. Houghton discussed the importance of getting the margins of the *Webster's* just right, referencing what he thought worked well in the *Worcester's*. The entire book was updated with the latest terminology taken from dozens and dozens of scientific and technical sources. It made sense that the new *Webster's* include images documenting the amazing advances in industry and the sciences, specifically the proliferation of new species discovered through exploration. All of the new information made this a big book. In fact it was "the largest single volume ever made in quantity."

H. O. Houghton & Co., the printer and bindery, deserves credit for making such a big book possible. Structurally, the subsequent *International Dictionary* is amazing, as its pages were first machine sewn, then cords were oversewn on the spine to give the huge width of the book the support it needed for its monumental size. As mentioned earlier, size kept the encyclopedic nature

of dictionaries in check. Extra features kept getting added on to make the books more appealing and useful to the public, making the second edition of the *International* in 1909 the most illustrated of all the G. & C. Merriam Co. versions. But this would prove to be a high-water mark as the trend in dictionary makers was to scale back features and size.

One of the main casualties of the scaleback was the illustrations. It made sense in those mid- to late-nineteenth-century books to include images of all manner of fauna and new technology. But, as exotic wildlife became more familiar to society due to the explosion of magazine printing at the turn of the twentieth century, these images must have begun to seem unnecessary in a dictionary. And as turnover in technology accelerated, a dictionary maker was wise to refrain from including images of devices that might soon be obsolete. I have a further nagging sense that illustrations began to be seen as somehow less sophisticated by society at large. For whatever reason, the G. & C. Merriam Co. dictionaries show a great decline in the number of illustrations as the twentieth century progresses.

With the development of full-color reproductions and the Internet, a dictionary is the last place one would think to look for illustrations of an animal or machine. What is now called Merriam-Webster Inc. has adapted accordingly. Their online dictionary, www.m-w.com, has added a visual dictionary with pictures and diagrams.

They also have an arrangement with *Encyclopædia Britannica* that adds a second virtual volume, so the online *Webster's* can satisfy any encyclopedic wishes. But what the Internet doesn't

provide is the easy diversion of the random illustration, whether a curious quotation or abstracted image. Though their numbers are greatly diminished, library readers today, hurrying to the *International* to find a spelling or meaning, still discover the simple joy from those little pictures and arcane phrases. The random picture or phrase might even be the more useful bit of information picked up at the brief visit—a thought to hold and later to share, a small spark to brighten our daily routine.

DICTIONARY TIMELINE

- 1720s Nathan Bailey, London. First English dictionary with images.
- 1755 Samuel Johnson, London. First English dictionary to use literary illustrations.
- 1828 Noah Webster, Springfield. First of his *Unabridged* dictionaries (Joseph Worcester compiled a table of comparative pronunciation for this book).
- 1835 Worcester prints his first condensed dictionary.
- 1843 C. & G. Merriam buy the rights to Noah Webster's *An American Dictionary of the English Language*.
- 1846 Worcester prints *Worcester's Universal and Critical Dictionary*.
- 1851 John Ogilvie, London. *Imperial Dictionary*—Webster's 1841 with supplementary encyclopedic information (scientific and technological additions) and illustrations.
- 1859 G. & C. Merriam Co., Springfield. First illustrated *Webster's Dictionary*.
- 1864 G. & C. Merriam Co., Springfield. First major overhaul.
- 1890 G. & C. Merriam Co., Springfield. *Webster's International Dictionary*.
- 1909 G. & C. Merriam Co., Springfield. *Webster's New International Dictionary*.
- 1934 G. & C. Merriam Co., Springfield. *Second Edition*.
- 1961 G. & C. Merriam Co., Springfield. *Third Edition*.
- 1982 G. & C. Merriam Co. renamed Merriam-Webster Incorporated.

PICTORIAL WEBSTER'S: SOURCEBOOK FOR CREATIVITY

When I began this project in 1996, I was finishing a book I created with artist Sam Walker for an exhibit called “Science and the Artist’s Book.” Our book, *Putrefatti*, was based on Francesco Redi’s 1688 book that disproved the idea of spontaneous generation. In his book, Redi shows through experiment that life must come from other life. While making our book we asked the question, “From what reserve is artistic inspiration drawn?” We imply in *Putrefatti* that it is possible that creativity is, indeed, an act of spontaneous generation.

But I didn’t believe it. If the incredible diversity of life on earth could come about by meiosis, then surely a scientific explanation for creativity must lie somewhere in the way we recombine old ideas. “Eureka!” I understood how our collaborative book, *Putrefatti*, was more

than twice as good as anything we could have done on our own. Just as jumping genes help fuel evolution, so, too, mental leaps brought about by two minds trying to meet and understand one another increases our creativity. Might that same process not also happen within one’s own mind—and could there be a way to enhance it?

Let us start with Redi’s conclusion that there is no such thing as spontaneous generation, or as the phrase goes, “There is nothing new under the sun.” We cannot simply imagine something new. Try it. Even our dreams are only reconfigured elements of our lives. The most horrible monsters painted by Hieronymus Bosch or the most incredible aliens depicted in Hollywood might be completely original creations. But when examined, their component

attributes can always be broken down to things that existed before. We cannot even understand new information without a basis of comparison.

But we all know that new ideas and inventions do come about. Think about the explosion of thought that has come about since the seventeenth century. Redi was unable to imagine that new species might arise. Today, even those who do not believe in it can still imagine such a thing as evolution. Humanity has greatly expanded its collective imagination by cobbling together concepts to allow for new thoughts and ways of seeing our universe. New ideas will never end because ideas and products can be infinitely recombined. Each generation has an expanded idea of the possibilities for humanity—both for good and for ill. But, just as dictionaries must abandon arcane terms to conserve space, perhaps there is a finite amount humanity can know at any point. Like a brush fire constantly expanding outward in a field, the burning area spreads and grows but soon the fire in the center burns out and the ever-expanding, burning circle becomes disconnected. We forge ahead, building upon, but then forgetting, concepts

developed by our ancestors and how the current “invention” connects to the past.

So how does this additive creative process work? Any time we put two things together we create something new that, over time, can become far removed from the initial invention. Putting a lawn mower on the bottom of a tractor and making a driving mower may not seem so inventive. But if we travel back in time to try to make the connection between a riding mower and a horse and wagon and a man carrying a scythe, the leap becomes stupendous. This progress of incremental steps can take us from the telegraph to a cell phone.

Eventually, it seems all inventions lose their newness and become taken for granted. Forgetting the how and why of many useful innovations leads to a loss of wonder and causes us to forget why they were important to bettering our existence (or whether they are useful at all—or perhaps they are words added to our lexicon which we would do better to forget). But by stepping back for some perspective on our creations we can appreciate them anew. One way to do this is by virtual time travel. Looking back through time at older versions of

machinery and how our forebears saw the world around them is often source for inspiration. Long ago people were still very clever at solving problems. We not only marvel at the genius of the telegraph, but we remember how remarkable the cell phone is as well.

Sometimes great thinkers will make incredible leaps of thought that will bring about great changes in society all at once. Perhaps the best documented moment of mentally bridging distant concepts was when Nicola Tesla invented alternating current by perfecting a dynamo while watching the sun set and reciting *Faust* to a friend. In an instant he put together the rotation of the sun with the rotation of magnetic current in his mind and was able to not only make his two-phase motor run, but he mentally flipped a switch and was able to make it run backwards.

Such a moment is the stuff of creative genius.

Pictorial Webster's can be used as a creative vehicle by providing thousands of new groupings of images that, to synthesize, will require the creation of new thought bridges. I initially hoped that even the most casual reader might be

affected subconsciously by the book. Perhaps in dreams after glancing through the book a person might have a new idea. But my research into our thinking indicates it will probably require conscious observation of the book to enhance creativity.

Humans instinctually try to find the connection, or lack thereof, between proximal objects. If two people are approaching us they might mean us harm or just happen to be two people walking together. We make use of minute visual clues and our stores of experience to classify people and objects and project outcomes based on past experience. This is the same thing that happens when one looks at a page of *Pictorial Webster's*. We try to figure out what connects the images on a page. And if we can't tell what is alike, we can often tell what doesn't fit. Think of the old *Sesame Street* game "Which of these things is not like the others?" People are attuned to recognizing the misfits. Beyond this, if we don't know what something is, we ask, "Does it look like something I *do* know?" That association can be used to guess what its function might be. You might find yourself

saying to yourself, "Wow, I never noticed it before, but that looks like such-and-such; I wonder if there is a connection." Perhaps you have just stumbled upon a new idea.

Studying pages actively with an "open mind" will also preserve creativity in an aging brain. As we get older, myelin starts to build up along frequently used nerve pathways. Myelin insulates connections between nerve cells so that we use less energy and can process common input more quickly. But this process also makes it harder to make different connections between nerves. It explains why "You can't teach an old dog new tricks." The mind that is no longer open will look at images from the book, and make a quick decision of what the image is of, and think about it no further. "That is a ticker tape machine." But even the most hardened of minds can create new pathways. Think of it as a "brain bypass." The way to do it is to look at an image and relax your mind. Meditate on what this image reminds you of—don't look just to what it is, but also how it is rendered and how it relates to its neighbors on the page.

Belaboring the concept further seems pointless. To read a new thought sparked by page spread 390–391 with the engravings of Whales and the *International Dictionary*, read my Glossary entry for Leviathan. If you want to creatively explore the pages with another person, engaging in a thought process outside of the confines of your individual brain, you might compare your associations for the images on any given page. In doing so you might not only begin to understand the webs of associations that are important in another person's thoughts and experience, but it is probable that your two minds will generate even greater "Eureka!" moments. Neural nets will synchronously fire within your two brains and you two will have a shared moment of consciousness beyond the confines of your two minds—revealing a new thought to the Universe!

HYPOTHESIS OF MEMORY AND THOUGHT AS REPEATED AND COMPARED PATTERN



In trying to explain how disparate images could enhance creativity I constantly wondered how thoughts and memories are formed and stored in the brain. Researching the way we believe our brains work from the vantage of an artist rather than a neurologist, it occurred to me that all brain activity is, in essence, pattern. The following model of the brain as an elegant receptor and seeker of patterns allows one to conceptualize

how the brain, though immense in its capabilities, uses a simple method to recall memories and to learn.

I include this quixotic endeavor in *Pictorial Webster's* as I am a great believer that with good observation, anyone can make a contribution to science. Like Einstein, I believe imagination is at least as important as knowledge. I also believe discovering what makes the brain work must be one of the greatest frontiers to

explore. And though few people may read this appendix, I think it has great bearing on the content and use of the book. If you are one of the few who read it, I hope this explanation of how we think may find resonance with your experience and so make sense within your mind.

I. WHAT DO OUR BRAINS DO?

1. Our brains receive sensory input from our various senses as patterns of impulses. The varied methods of the senses to transmit stimuli dictate where the patterns go in the brain; thus we perceive sight in one location, sound, feel, spatial relations, etc. in others. These impulses create unique patterns of neural activity through the brain, which neurologists refer to as *neural nets*. Although the nerves which are used in a neural net may be used in millions of other nets, each neural net (pattern of impulses) can be associated with a particular experience or memory. Thus, when a situation creates a similar neural net (either because of similar sensory input, or because there is simply a similar pattern

of neural activity) it can trigger earlier neural nets for a comparison of the patterns.

2. If Christof von der Malsberg is correct in asserting consciousness arises from the “synchronous firing of nerve cells concerned with the different features of an object,” the act of the brain comparing patterns also *creates consciousness*. It makes sense that consciousness happens in the comparison of patterns (finding parallels in neural nets), as it is at that moment of synchrony that our brains not only recognize but analyze the similarities (or differences) between patterns.

3. When a particular neural net is well established, the associated activity or object becomes “internalized” or “known.” Subsequent input traveling that same net will be less likely to produce consciousness.

4. By combining the brain’s abilities to compare and remember sequences, it can begin to predict outcomes. This is how we “learn.” Our conscious brain

creates new neural nets in other parts of our brain from existing nets. This allows us to do things such as learn and create language. This ability to synthesize stored patterns to create new patterns is our higher thinking process, and this recombination allows reasoning and creativity. We have the ability to test the patterns we make within our brains by combining elements in the real world as a way to prove the validity of our thoughts. We compare the patterns we created within our mind to the incoming patterns from our senses. This feedback is also part of learning and the tether between the sensory world and that which we call knowledge or understanding.

5. Because each brain is slightly different, and our sensory organs are as well, there are no "absolute" truths, but because all brains use the same method to compare data, we find truth through a process of comparison. There is no understanding of any thing without establishing a relationship between that thing and something else. (This explains the importance of metaphor in creating meaning.) We always have to triangulate

late to get at the truth. For example, in trying to describe my brain hypothesis, the only way to do so is to provide illustrations of the way things work in order that we might compare our experiences and see if there is "truth" in it.

II. HOW DO OUR BRAINS WORK?

First, I believe it is important to assume that the brain evolved to create memories without doing so consciously, just as our heart evolved to send blood around our bodies. This assumption continues that not only is data input with no conscious effort, but it's also automatically sorted as it comes in, as similar data entering the brain in a similar fashion will automatically follow a similar pattern or neural net. This correlates with the fact that we are not conscious of most of what transpires around us, but we can be made sensible of it when the necessity arises. A simple example of this is a student daydreaming in class. The teacher snaps at the student, "What did I just say?" The student then recites, without "thinking" (perhaps by activating

the neural net following the vibration of her voice), the last sentence word for word, becoming sensible of the meaning only as he is repeating it from his short-term memory. But perhaps, this was my own digressive daydream. "Johnny! Pay attention!"

Fleshing out my hypothesis will have to be done in the most cursory of terms, as trying to exemplify all of these ideas would take the length of a book. I leave it to you to test it further than what follows.

All memory and thought starts with sensory input of an experience. Our brains receive sensory input from our various senses as patterns of millions of impulses from neurons. These impulses are sent in parallel to many different regions of the brain that process the input from the eyes, ears, fingers, tongue, etc. This pattern or neural net will now exist in the brain as a memory. When you get to know someone you build up neural nets that become that person in your mind. Simply hearing the pattern of his or her voice can trigger those neural nets allowing you to recognize the same person calling you on the phone. You become conscious of the recognition

when nets firing within your brain synch up with the incoming impulses.

We discover what is important by what creates the strongest neural nets. From vibrations of the voices of our parents imprinting on our brains in the womb to repetitive advertising, we feel comfortable with and start to believe repeated experience is meaningful. Also, nets that are formed by different activities but which share pattern can be recognized as having shared traits by our pattern-seeking brain. Discovering commonalities between experiences must cause a sense of pleasure for the pattern-seeking brain.

New experiences are easiest to remember because the thought patterns created are different from other neural nets. Subsequent similar memories will always follow and compare to that first memory, making it last a lifetime. Traumatic experiences make bigger neural nets and so many new thoughts will travel down those even when they are not exactly related, thus changing the way we experience life.

Because memories are made up of many neural nets which interweave, one sensory experience can trigger

another “forgotten” memory. If I hear “Redemption Song” by Bob Marley, there are people and places that will always pop to mind. I find I am often listening to a small selection of favorite music while I work on a project. Years later if I am working on the same material I find it helpful to listen to those same albums as they help “get me back into the groove” of the original project experience.

The way we avoid being distracted by the overwhelming amount of incoming data has to do with the dichotomy of memory—that learning is simultaneous with forgetting. Once we have internalized something we are no longer conscious of it. We aren't conscious of every word we speak. We don't see our noses although they are always in our peripheral vision. Similarly, when we see a person for whom we have a well-developed neural net, the incoming pattern from our senses will activate the neural net for that person and our brain will simply recognize that net, but might not be conscious of the fact that the person has a new haircut. (Consciousness of difference arises if

the incoming sensory pattern is different enough that instead of simply traveling existing nets, it diverges to new nerves, making us compare the known net to what we are experiencing.) If input is repeated enough, we not only get to “know it,” but it also becomes invisible. Try to remember what happened to you on your commute to work two months ago. You can probably visualize your entire commute quite clearly because that has become strongly imprinted on your brain, but to recall one day out from the rest is difficult unless something different happened. The conflicting human desire for the new, while also craving habit, must have its basis in this aspect of brain function.

Using a piano to sound out a song we have heard illustrates our ability to test patterns stored in our brain by synthesizing those patterns using external means. We compare the patterns of notes, of intervals, of timing in our head to what we are hearing while playing the instrument to reproduce what is in our mind.

Recognizing language involves a more complex process, as word recognition is built up from a series of

learned patterns. Neural nets have been created in a separate part of the brain from patterns made of experience. What this means is that every word has associations for each of us that trace back to our initial learning of a word. But our brains are able to untether ideas from their initial patterns to a secondary storage capacity where our brains store ideas. Thus, in developed thought processes such as language or mathematics, though we have personal associations with the formation of every building block, we are able to disassociate each of these to create sanitized networks of thought. These arenas of “book learning” can be used to more efficiently synthesize thought as the ideas are no longer tethered to memory.

Our ability to compare patterns is what allows us to feel we understand other people. Just as we cannot be sure we all see colors the same way, it doesn't really matter. What matters is that the individual creates patterns consistently. So even though the patterns within their two brains may be greatly divergent, two people will perceive the same consistencies and inconsis-

tencies in the patterns of the concept they are discussing. In fact, it is only through comparison and combination of patterns that we get a sense of understanding anything. In a connected manner I feel if I find the right metaphor my point will be made. To use a mathematical metaphor, our brains use a kind of trigonometry to compare ideas. By triangulating two patterns, we derive a value. We can then use a kind of calculus to rotate the intermediary idea and “see” it in three dimensions. Or relating ideas to chemical molecules, the place where they have similarities can be used as a binding point to connect ideas in order to build larger concepts.

Because pattern recognition is the central function of the brain, it not only explains why we can find commonalities between vastly differing patterns but also why we are such pattern seekers at all. This explains our ability to find faces in just about anything: “the old man in the mountain,” a face in wood grain, in a water stain, on Mars, etc. Admittedly, this ability has to do with our survival, but it shows the way the

brain is always trying to make sense of patterns. It may even explain our search for God. To give an idea of just how powerful pattern recognition is in humans, we can on one hand recognize the difference in timbre between a note played on a viola versus a violin but we can also detect the song "Jingle Bells" when it is created from an arrangement of dogs barking with the correct tempo and more or less the right rise and fall of pitch.

It is my hope that these truncated explanations might be extended to show how thinking evolved through pattern capture, comparison, and pattern seeking.

III.

WILD CONJECTURES ON THE MACHINERY OF THOUGHT

It has been well established that certain areas of the brain control different body functions. Through the same way evolution confusingly melds form and function, patterns of impulses coming into the brain from the senses might be thought of having certain inherent

"shapes" they would assume if placed in an inert environment. The shapes of the impulses are caused by minute strains built up by one pulse pushing against another, perhaps by stronger and weaker areas of impulse, which may cause the impulses to twist like a river. When the impulses get into the wonderfully complex network of nerves in the brain, the impulses form their inherent shape as they travel across the brain. In the same breath, the nerves along which they travel formed in the shape they did to accommodate the shapes of sensory information they carry. This could account for instinctual behavior; the shape of the brain selecting for thought patterns. It might seem simplistic, but from a visual standpoint, it appears as if the impulses coming in the brain travel across the brain until they impact on the far edge from where they entered. At that point there is no place to go so the impulses double up on themselves—creating consciousness—and for that reason the control of our body functions is located at the opposite edges of the brain to those of the nerves carrying in the sensory information.

But what keeps neural nets from disappearing? It seems as if the pattern of thought is creating something out of nothing. For years I held onto a notion that thoughts must somehow constantly cycle, dancing through our cerebellum in patterned impulses of electrons, like sharks. Our thoughts must keep moving or else they will no longer exist. Perhaps they set up a kind of standing pattern in parts of the cerebellum that match the pattern they would describe? My understanding of current theory is that memories exist due to "long-term potentiation" at synapses.

Thus, the memory will only reappear as the neural net is triggered by activity.

IV.

HOW THE HYPOTHESIS APPLIES TO LIFE AND THE BOOK

The Nature vs. Nurture debate is largely unchanged by this pattern hypothesis. Though our experience is essential to determining our being, the individual makeup of our muscles and brain determines how we process and understand

our experiences. Still, the hypothesis might explain why patterns of action, such as violence and abuse, which are strongly imprinted on young brains are passed on from generation to generation. The interpretation of *Pictorial Webster's* will also vary according to each reader's life experience, areas of expertise, and brain structure.

An interesting question with which to end might be "Where does the formation of memory start?" Our bodies do not store all of our memories in our brains. It has been shown that patterns of impulses are remembered by the neurons in the muscles themselves. Thus, the concept I was taught in book-binding school of "muscle memory" is real. Yes, your piano teacher was right. Some skills such as hitting a ball with a bat are only learned with practice! Accordingly, some memories will best be triggered by using a muscle in a certain way—or even finding oneself in a familiar place.

By extending this concept, things outside our bodies can become part of our memories. Physical objects or mementos can be a powerful way to preserve our memories. Some use visualization

techniques like the Emperor's Kitchen to remember information: Pressing matters are put on an imaginary stove, and related items are put in various cabinets as spices or necessary pots and pans, while long-term items not to be forgotten can be put in the freezer. If you wish, you can use the *Pictorial Webster's* in a similar manner to be a repository for your life's memories. Affix a memory with each image by creating an interesting association in your mind.

The random collection of images in the book might also be used as a device to further understand the way your own mind works. Notice how your mind relates to known or familiar images versus strange or unknown images. What in your experience draws you to one image more than another? By following your various trains of thought sparked by images you might be able to map out some of the networks of your brain.

I offer one last thought for those who have understood and found a connection with my hypothesis. We develop a sense that we understand something when we have a mass of strong neural nets that are related to an idea and which

have a resonance with many other nets within our brain. When we think of a concept, it has a pattern that will have synchrony with many other patterns in our brain giving us the feeling that it fits, makes sense, that it is true. This is a good feeling because we are programmed to want to find patterns.

But it is not enough to understand patterns only within ourselves. We want to find patterns outside of ourselves and see that these patterns fit with the patterns in our heads. This is why we search for, and are attracted to, people who have thoughts similar to our own. When we make a real connection with another person, it is as if we have a moment of consciousness outside our head. We create a pattern that is now out in the consciousness of the universal mind.

A GLOSSARY OF TERMS PERTAINING TO

ADAM'S ADVENTURES IN THE ★ ARMY ★



A NOVEL COMPANION TO THE PICTORIAL WEBSTER'S

ADAM. Adam was the first man on Earth, according to the Old Testament legend. The entry in Diderot's *Encyclopédie* would lead some to believe Adam was a giant and that he lived for only 900 years. He was a man of fine stature, but except for the period when a land bridge connected Asia and the Americas it was not true that he could straddle both continents like the Colossus straddled the harbor in Rhodes. He never did die, either. Where would he and Eve go? How could God let them back into Paradise? Could God be so cruel as to condemn them to a life in Hades? Well, He left them on Earth to live out their days, and it is not clear whether they can die or not. Adam does have very large feet even for his height, as evidenced in his footprints found in Asia and in Israel. Recent footprints of his are identified as Yeti or "Bigfoot" prints. See Yeti.

ARP. Jean (Hans) Arp. Hans and Franz say "Put some egg on your face." Absurd artwork is not to be understood, but to be enjoyed as beautiful fun. Our world is absurd. We have such little comprehension of our Universe, we might as well enjoy it and be silly every now and

again. It's okay to laugh even though we don't understand God's jokes.

ART. Anything that doesn't make money.

ATOM. Thought by the Greeks to be the smallest particle into which the Universe can be divided. Turns out, the atom is so big its smallest parts could believe an atom is the Universe. God made the atom in his image, and all creation is made up of the atom.

BIG BANG. The sound from the big bang is still traveling toward Earth (but will someday destroy it). This explains why Genesis only describes the light part of the explosive creation of the Universe.

BLAIN. Absurdist device resembling the earpiece of eyeglasses held in a shirt pocket. It was made famous by V. J. Jain, who would reveal it to confound others while in conversation. "What is that?" they would gasp. Jain would respond in his characteristic dry tone, "My blain."

BRACHYURA. Sect of dictionary makers in Akkad. Thelphusian, the

founder of the order, is believed to have been the architect of the tower of Babel.

CANCER. Constellation in the shape of the blueprint for Thelphusian's tower. When the Greeks reinterpreted the constellation as a crab, the word took on new meaning and distorted all further readings of Brachyuran cuneiform style.

COLOSSUS-OF-RHODES MAN. Found in AD 4020, in the Sludge Area. So named because the head of an American white man containing a wooden cube with a carved image labeled "Colossus of Rhodes" was found in a vault filled with hundreds of similar cubes with other images carved on their surfaces. C-R Man was believed to be amassing these wooden cubes to use as some kind of currency after the monetary collapse brought about by the Democrats, who were called Republicans during the twenty-first century.

DODO BIRD (*Raphus cucullatus*). Said to have been strong and greedy. After all the reptiles were killed by the strong beaks of the Dodo, there were no predators of the Dodo Bird in its little island

world. Their society grew to be arrogant and wasteful. The Dodo Bird would lie around on its fat belly eating all day. Life was so easy for the Dodo Bird, their sexual preferences revolved around large beak size and the animal eventually lost use of its wings. (Similarly the arms of Tyrannosaurus Rex atrophied through preference of large mouths and teeth.) Though believed to have gone extinct by 1681, a Union boat blown far off course during the storm that sank the *Monitor* had a record in the log that "Day 47, December 13, 1863. Private A. Adam found a beaked bird with no wings that was large enough to give meat to our entire crew."

EVE. When Adam was split, Eve was his other half. As Adam was given the job of naming everything, Eve, the first mathematician, was given the task of numbering God's Creation. (From a big zero, the universe divided into a binary system of male and female.)

GOLF. Pastime of Apollo and one of the last gifts to mortals from the Roman Gods still hiding out in Scotland when Christians killed the last of the "Pagans."

JESUS. The “chosen son” whom God gave to the world; gets all the glory, makes Adam jealous and mad.

LEVIATHAN. Story of existence sung constantly by whales. The first song a whale memorizes is the whale equivalent of Genesis. Without the ability to write, the complex oral tradition of whales went beyond word millennia ago. In the same way human brains process electrical pulses and charges as thought, whales translate sound patterns as thought. Thus, whales sing reference-laden thoughts to each other. Like the genome, the whale songs are constantly adding new verses, making each individual only part of the whole collective of the great Leviathan. By disrupting their communication, sonar may be obliterating whole chapters of whale knowledge.

LITERARY CRITICISM. When we engage in criticism of a book, what exactly are we doing? When discussing a great work of literature, some like to look at sources from which the author may have drawn inspiration, others to the culture of the time the book was written, while others may compare this work to

other books by the same author. These are all techniques aimed at coming to some greater understanding of a book. But what are we learning? Truths about the way a book of fiction works? Or do we believe a work of fiction can give us insight into the world in which we live?

LOBSTER. The thirteenth creature, the lobster, is believed lucky by some. Deep in the ocean there is an enormous lobster 13 days younger than Adam. It is believed that when that lobster is caught, the world will cease to be, or that Adam will finally gain insight.

LOOSY-GOOSIE. A word that should never be used in a book intended for serious use.

MEMBWAMES. An exclamation of excitement and delight. First use credited to Peter Hepler, noted plant-cell biologist.

MENTAL EXERCISE. Try looking into your head to see how the thoughts are flowing. It is a difficult task. Try to quiet your consciousness and notice what thoughts you are having and how

one thought moves to another. It is okay to imagine your head being “dark” at the start, but this is your imagination at work. Your thoughts are blinding and fast—you’d better exercise more to keep up.

THE MONITOR. First iron-clad fighting vessel. It was in an epic battle with the *Merrimac*, the South’s attempt at an iron-clad. The battle was the Civil War equivalent of Tyrannosaurus Rex fights Triceratops.

MULLET. Haircut of genius.

OKLAHOMA! An American play which in musical form created a mantra to make peace between the Earth’s oldest rivals: the Farmer and the Cowman. In Urbana, Illinois, and Stony Brook, New York, it was further realized that Mathematicians and Writers might find the answer to World Peace through “being friends.” This book is an effort to meld image and word, science and art.

PEACE THROUGH UNDERSTANDING. The phrase to embody the 1964 World’s Fair, also the name of

an organization formed during the 1950s near New Harmony, Indiana. Notable among their members were a man named Nation, “Mariehen” Al-an, and Caroline Schnautz. Their beliefs included inter-faith worship, divining truth through the use of mediums, and creating music and art that would inspire a groundswell of enthusiasm to bring about Peace on Earth. In the 1990s, Caroline journeyed back to Evansville following a vision to write a prayer to fulfill their original vision. Pray for her success!

PENNY. As in: “A penny for your thoughts.” Hopefully you would pay more if it was something that mattered. It is hard to see how another person’s mind works. One way to find commonalities (a good activity to try with your betrothed) is to choose a page from *Pictorial Webster’s* and compare the thoughts that first came to your individual minds. Each person might fill the book with thoughts scribbled around the images and then switch books. By studying the other person’s book, you can discover the way your two minds process the same material.

PIPING HOT POP TARTS. On page 275 there is an image of the Tour Eiffel (Paris, almost labeled Pipe Envy) with a hat on top of it. A month after printing this page spread I bought a box of Pop Tarts and on one of the flaps was a similar image of a hat atop the Eiffel Tower?!

PONDERSOME. Awkward to the point of creating hardship for the user. *Woodhead carries a pondersome axe.*

PRIME NUMBERS. In Eve's numbering system, Adam was one, the first Prime. Eve was two, the first and only even Prime Number. Cain was three, the most beautiful Prime. Unfortunately Abel was number four. The first non-prime number and the most boring square ever to walk the earth. All Primes are geniuses. It explains why there were so many brilliant things created when the Earth was young and Platos and Euclids and Homers were a dime a dozen. But Shakespeares, Beethovens, and John Adamases will continue to be born as there are an infinite number of prime numbers. Our luck is only that as our Earth ages they become farther apart. Remember that when you meet an

eccentric they call "genius," some very large odd numbers are just very large odd numbers.

SNOWFLAKES. If snowflakes could think they might feel marginalized by the Webster's engravings of snowflakes. Do you remember noticing snowflakes? One doesn't have time to regard them as an adult. There are different types, and thankfully the editors of G. & C. Merriam Co. included a few varieties. My father, Nicholas Carrera, studied snowflakes when he worked in cloud physics. He went from snowflakes to studying atomic detonations. Talk about a snowflake in the fire!

TOXIC WASTE. After the great sea rising and ensuing climate collapse in the mid-twenty-first century, the area once occupied by New York, N.Y., to the south and New Haven, Conn., to the north was coated with a 5-foot layer of a product Americans invented in the twentieth century called "Toxic Waste." The layering coincided with the event which destroyed that area of the country. It is now believed companies were hoarding the substance in warehouses

south of New York. The sludge blocked out oxygen, and beautifully preserved biological remains. Study of this find has begun, but precaution is suggested. Though it preserves dead matter, some scientists say Toxic Waste is dangerous to living organisms.

UNBWOGABLE. A word that helped win what may have been the first truly democratic election in Kenya. Made up by a Kenyan hip-hop duo, it combines Luo and English to describe a state of invincibility and undupeability. "I am unbwogable; I am unbeatable. . . . Who can bwogo me? I am unbwogable."

VOCABULARY. An assignment given to children in the last years of elementary school. Soon forgotten, along with grammar, as it is not fashionable at the mall or at sporting events or around your family to use those hard words, some of which were called Snarks. Remember how to use a word in a sentence that informs the reader of the meaning of the word? An assignment from this book might be to use each image of a page in a short story combined with the vocabulary assignment of the week.

WOODHEAD. Illegitimate son of Adam, born from a hollow log Adam used for an indescribable act. Do not confuse this log with that from which many Pueblo Tribes emerged.

WRITTEN WORD. Before words were written down they had power in and of themselves: To know a name was to have power to conjure a thing. But once the names were written for all to see, magic evaporated from the culture. This is why witches and dragons started to disappear from England around the time of Chaucer and were only a memory when Shakespeare came on the scene.

YETI. (var. sp. Yetti). When the first man becomes tired of trying to live in civilization, he runs to the hills to commune with nature and to continue naming new species of slime molds and moths. Every so often he allows himself to be captured on film, or leaves a footprint.

ZAPPA, FRANK. Almost mentioned on page 432. Some believe he was 211213-1, the same number Dr. Bateman et alia discovered and had printed on the University of Illinois' postage meter.

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