

NATURE STUDY—No. XVII.

THE COLLECTION AND PRESERVATION OF BUTTERFLIES AND MOTHS.

By ARTHUR GIBSON, Division of Entomology, Central Experimental Farm, Ottawa.

It does not require much experience to collect insects. Some kinds of these interesting creatures can be found at all seasons of the year. Of the Lepidoptera, the moths, which as a rule fly at night, are by far the most numerous, and the months of June, July and August are the best to hunt for them. The first butterflies emerge during the early warm days of spring and continue to appear throughout the summer, some species flying late into the fall. The following directions, owing to limited space, are brief but are included in this Nature Study series in the hope that they may be of use to teachers and students who may care to collect these insects in connection with their work. Insect life is full of intense interest, and in the study of these beautiful creatures many practical Nature Study lessons can be drawn.

THE NET.—Butterfly nets can be bought from any of the dealers in entomological supplies. These range in price from \$1.00 to \$2.50. It is not difficult to make a net, however, and this can be done easily at home. One of the nets the writer uses, consists of a piece of cane 38 inches long, and rather more than $\frac{1}{4}$ inch thick. This is bent in the shape of a circle (fig. 1), the sides of both ends being shaved off to fit the upper square projections of a ferrule. An easy way of carrying the cane when not in use is to put it under the coat around the waist, placing the ends in the side trouser pockets. A light stick from 2½ to 3 feet long answers as a handle. Any tinsmith for a small sum will make one of these ferrules (fig. 2). The one I generally use is made

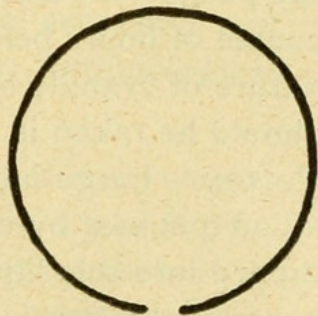


Fig. 1.



Fig. 2.

of tin, and has been in use for over eight years. For the bag of the net, ordinary green leno is serviceable. This should be first soaked in water to remove the stiffness.

When dry again, it can be cut in shape similar to fig. 3, care being taken to see that it is well rounded at the bottom, so as to leave no corners. A piece of strong wide ribbon should be doubled and both edges sewed to the top, so as to make a passage for the cane to slide through to keep the net in shape.

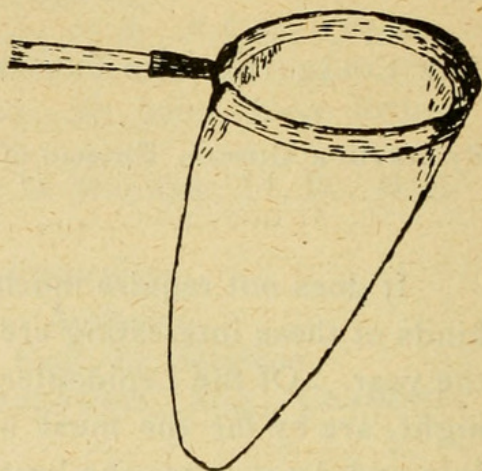


Fig. 3.

KILLING BOTTLE.—Any wide-mouthed bottle of convenient size will answer. The old 2 oz. quinine bottles, which may still be had from most druggists for a few cents each, do well for general purposes; the common vaseline bottle is also good. Test tubes can be had cheaply from druggists, and may be used for the smaller butterflies and moths. Cyanide of potassium is the poison used for killing insects. This should be broken into small pieces and put into the bottle. If a vaseline bottle is used, just sufficient should be put in to nearly cover the bottom. On top of this should be poured some liquid plaster of Paris, not more than half an inch. Some collectors put in a layer of sawdust between the cyanide and the plaster of Paris. The bottle should then be left standing for a couple of hours before replacing the cork. The deadly poisonous nature of cyanide of potassium should be kept in mind, and care should be taken in handling it. It is also well to label the bottle **POISON**. Large moths, such as the Emperors and Sphingids, are killed quickest by oxalic acid diluted in water. If with a sharp pen dipped into this liquid the underside of the thorax between the bases of the legs is pierced, some of the acid will find its way into the body and cause almost instant death. Preparatory to this a few



drops of chloroform may be poured over the thorax ; this will stupefy the insect instantly, when it may be pierced with the pen dipped in oxalic acid ; the chloroform will soon evaporate and will not injure the specimen in the least.

COLLECTING.—With a little experience the collector will soon become expert in the use of the net. Of course, at first specimens will be missed and, even when caught, spoiled by careless handling ; but practice will soon make perfect. It is impossible to lay down any rules as to where to collect. Butterflies do not all fly in the same places ; some kinds prefer sunny openings in woods, others swamps or the margins of streams, others again are found along railroad tracks, etc. The moths are to be sought for chiefly at night. Many begin to fly during the early evening and can be caught around flowers at that time. The electric lights on the outskirts of towns and cities attract great numbers, and here they can easily be collected. The method called “sugaring” is an interesting and productive way to secure specimens of many kinds of moths. The “sugar” is simply a mixture of molasses thinned with sour beer, which is smeared on the trunks of trees at dusk. These trees are then visited shortly afterwards and the moths there attracted collected. A dark lantern is of course necessary to enable one to find the trees which have been daubed and detect the moths upon them. When starting out, it is well to take some kind of a collecting box in which to pin specimens. An ordinary cigar box with a strip of cork glued to the bottom to receive the pins will answer. Special tin collecting boxes can be bought, but at first it is not necessary to buy these, nor in fact much other apparatus. Entomological pins, however, are a necessity, and these can be purchased in various sizes from the Entomological Society of Ontario, London, Ont.

MOUNTING —After having reached home the specimens should be mounted as soon as possible before they become dry. If they have dried, they may, however, be relaxed, by putting them in a receptacle containing some damp sand. An old vegetable dish does very well for this. For mounting butterflies and moths, spreading boards are used. These can be made by any one ; soft

wood, such as whitewood, or pine, should be chosen. Fig. 4 shows a section of the style we use. As the bodies of Lepidoptera vary much, different sized spreading boards are necessary. Our boards are of two lengths 18 and 12 in. In width they are $6\frac{1}{2}$, $4\frac{1}{2}$, $3\frac{1}{4}$, 2 and $1\frac{1}{2}$ in., with body spaces $\frac{5}{8}$, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$ and $\frac{1}{16}$ in. wide respectively. Below the groove a strip of cork should be

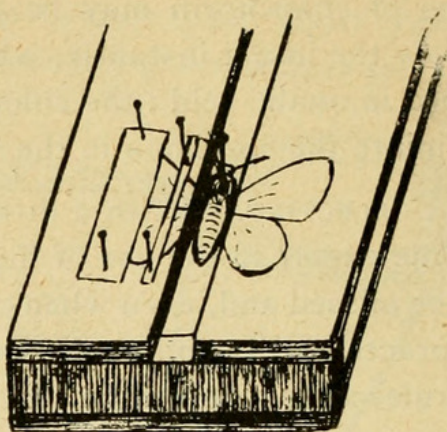


Fig. 4.

glued to hold the pin which has been put through the central portion of the thorax of the insect. When mounted, the insect should be high up on the pin, about one fourth of the pin above the specimen. The wings of butterflies and moths should be arranged as shown in fig. 4, the lower margins of the front wings forming as nearly as possible a straight line. With fine needles the wings can be brought forward and held in place by strips of writing paper or thin cardboard. No. 00 insect pin cut in two and the blunt end forced nearly all the way into half a match, makes a splendid setting needle. These pins are very fine and when used carefully to pierce the wings to hold them in position, the holes made are so small that they are practically invisible afterwards. Specimens should be kept on the spreading board at least a week or ten days, and the boards may be hung in rows on a wall, if a hook of some kind is screwed into the top of each.

If it is not convenient to mount the specimens immediately after their capture, these can be put in envelopes and then stored away in a tin box until the opportunity arrives when they can be relaxed and spread. Fig. 5 shows the pattern of envelope used by entomologists for papering their captures.

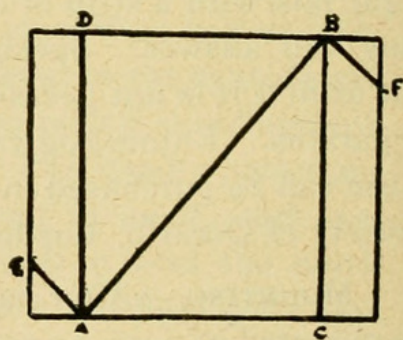


Fig. 5.

Method of folding paper for envelope. First fold on the line A B, then on A D and C B, and then on B F and E A.

These can, of course, be made in any size. The date, locality, and name of collector should always be plainly written on each envelope.

PRESERVING SPECIMENS.—When the specimen is removed from the spreading board, a neat label, bearing the locality, date of capture and name of collector should be put on each pin. Scientifically, a specimen is regarded as useless if it has not this information. If only a small collection is being made, mounted specimens may be arranged in ordinary cigar boxes, or any other kind of shallow box ; but it will be necessary to keep examining these constantly, as they are not, as a rule, tight fitting, and museum pests soon find their way into them and destroy the specimens. Insect cases may be bought from dealers and, if only a few are needed, probably would be cheaper in the end. These are of various sizes, and are lined with sheet or pressed cork, to receive the pins. The Schmitt case is recommended by many and is used extensively in the United States. If it is the intention to form a large collection of butterflies and moths, of course, it would be better to have a cabinet made, containing a dozen, or more, drawers, all similar in size and pattern. Most collectors like to have a series of at least four specimens of one kind of butterfly or moth. This is not always possible, as many are too rare ; but of the available species it is advisable to have two specimens of each sex, and also a specimen mounted so as to show the underside. Some form of deterrent to museum pests, as naphthaline or camphor, should be put in each case or box. A simple way is to make small bags of cheesecloth and fill these with ordinary flake naphthaline, pinning one in a corner of each box. If at any time fine dust is noticed under a pinned specimen, it is evidence that some pest is at work. In such cases a spoonful of bisulphide of carbon, or benzine, should be poured into the box, then the top closed quickly and left unopened for some hours.

A pair of entomological forceps will be found very useful in handling pinned specimens.

EARLY STAGES.—From a teacher's standpoint, collecting the immature forms and keeping them under observation until maturity will prove a most helpful way of arousing interest in insect life. In the fall of the year cocoons of the Emperor Moths

are often seen attached to the limbs of trees. If these are gathered and kept out of doors during the winter, and brought into the school in the early spring, the scholars will be interested in watching for the appearance of the moths. The cocoons of the *Promethea* Emperor Moth are usually to be found each fall on the lilac. Caterpillars of many kinds can be collected all through the season and with, a little care, reared to maturity. An easy way to obtain larvæ is to beat the foliage of trees and shrubs over an inverted umbrella. The greatest pleasure in entomology is the study of the life-histories and habits of species. The field is wide, and there is still a vast amount of work to be accomplished. The most useful work can be done in studying the early stages of moths. Only a small percentage of these have been thoroughly worked out, and careful observations recorded are of much importance. Specimens of the mature forms collected in the field, in many cases, are more or less rubbed or damaged, and always inferior to bred material. For few larvæ, ordinary jelly jars with tin lids will answer. Some earth should be put in the bottom of each jar, as many caterpillars pupate in the ground. Fresh food should be fed every day and care taken to keep the jars clean. If a number of the same caterpillars are being reared, larger jars will be necessary.

If at all possible, at least one specimen of each kind should be preserved for future reference and study. This is best done by inflation, and specimens thus prepared are more valuable than those put in liquids. Proper apparatus may be purchased from dealers in entomological supplies, such as : an oven, in which to dry the empty skins while being inflated ; a spirit lamp to furnish heat ; some glass tubes drawn out to different sizes at one end ; some clips made of watch spring and held to the glass tubes by means of a band cut from rubber tubing ; a double rubber bulb with about three feet of tubing attached ; and a pair of fine curved forceps. The process, briefly, is to (1) kill the caterpillar in a cyanide bottle ; (2) place it on a piece of blotting paper, cover it with a strip of the same paper, and gently press out, through the anal orifice, using the pair of fine forceps, all the body contents ; (3) attach the anal segment to one of the glass tubes, fastening it with one or two of the spring clips ; (4) connect the glass tube to the tubing of the double bulb and inflate the larval skin by gently squeezing the outside bulb, at the same, with the other hand, hold the caterpillar in the oven to dry. When perfectly dry, the larva should be carefully removed from the glass tube and mounted with shellac on fine wire, one end of which should be first wound several times around an insect pin. Naturally, at first specimens will be spoiled, but with care good results will soon be obtained. It is best to begin with hairless larvæ.



Gibson, Arthur. 1904. "Nature Study No. 17 - The Collection and Preservation of Butterflies and Moths." *The Ottawa naturalist* 18(6), 123–128.

View This Item Online: <https://www.biodiversitylibrary.org/item/28594>

Permalink: <https://www.biodiversitylibrary.org/partpdf/369200>

Holding Institution

MBLWHOI Library

Sponsored by

MBLWHOI Library

Copyright & Reuse

Copyright Status: NOT_IN_COPYRIGHT

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.