

fore wings are females; those with one, males; others without the round black spots are of a different species. This is a case of sex-dimorphism. More striking examples are to be found among many of the higher animals, *e. g.*, among turkeys, hens, moose, deer, etc., etc. Among moths the feelers of the male are often larger than those of the female, the color markings brighter, but the body smaller. Separate the sexes. How do they compare in size? Is there any difference in the degree of coloration?

In field-work watch the butterflies as they visit flowers. On what colored blossoms are they most often found? It is always interesting to watch them carefully on the flowers as they uncoil their long "tongues" or sucking tubes and insert them in the corollas for nectar. The sweet juice is drawn up the tube much as a child sucks up water from a cup through a straw. During their wanderings from flower to flower in search of nectar they aid in the cross-pollination of plants. But cabbage butterflies are also found on the foliage leaves of their food plants. Here they lay their eggs, and here the young caterpillars feed and grow.

The eggs are very small pale yellow elongated objects. On which side of the leaf are they placed? Are they found singly or in clusters?

When seen under the microscope they are very beautiful flask-shaped objects, ornamented with about twelve vertical ridges, each marked with cross striations.

In about a week tiny green caterpillars hatch from the eggs, and begin to feed on the leaves. They are greedy little creatures, and soon grow till the skin is stretched to its utmost capacity; at this point a new skin is formed under the old, and the latter thrown off. This molting, as it is called, is nature's provision for an increase in size, and occurs four times in the growth of this caterpillar.

Contrast the caterpillar with the butterfly form. Note its elongated body of thirteen distinct segments, its covering of fine white hairs, its green color, the narrow yellowish line along the back, and the broken yellowish lines, one on each side. Are eyes and antennae present? It is wingless, but it has eight pairs of legs; the three forward pairs are true legs, the five hinder pairs are called prolegs. Contrast the different kinds of legs.

Compare the motion of these caterpillars with that of the loopers or measuring worms. Examine one of the latter and account for its peculiar motion.

The mouth parts of this caterpillar are not much like those of its adult form, the butterfly. Watch it feeding and learn something of the shape of the jaws and their motion in cutting or biting.

When the caterpillar becomes full grown it leaves its food plants and attaches itself to fence rails and sheltered places about buildings; and with the posterior end fastened closely to its support, and the anterior part supported by a girdle of silk, it passes into an odd-looking angular form, the pupa or chrysalis, the resting stage, quite unlike either of the stages already mentioned.

In this form they remain quiet all through the cold of winter, and are to all outward appearance quite lifeless; but under the influence of the warm sun of April and May they show signs of life, and finally split open along the back, and a beautiful, lively, winged creature, the butterfly, emerges.

These butterflies lay eggs, caterpillars are hatched, and pupae are formed, all in the space of a few weeks. The warmth and beauty of summer are so inviting, the calls of nature so urgent, that the butterfly cannot long be imprisoned in its pupal stage; the round of life is soon completed, and a new generation is on the wing, in from ten to twelve days from the time of pupation. Thus the cycle revolves till we have three broods or generations in the short space of a single summer.

This butterfly is not native to America, but reached us from Europe in 1860. It found its food plants abundant and its enemies scarce, so it spread rapidly from such starting points as New York, Charleston, Chicago and Quebec, and covered the continent. The larvae were especially destructive to the cabbage industry, and it soon gained a reputation that it still retains, as being the most destructive of all our butterflies.

But their enemies have now come to the front, and have increased so in numbers that they have restored the disturbed balance of nature.

If one collects some autumn cabbage caterpillars, and keeps them in a box for observation, he frequently finds only part of them passing into the pupal stage; from the others small maggots bore their way out through the skin, and settle upon the outside or on some near object, where they spin tiny cocoons. In a few days each cocoon