

NATURE STUDY OF ANIMALS.

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Our rivers, ponds and streams teem with things of interest for the student of nature, and each one is filled with the stories of its life and adventures. It is certainly a strange story that we hear when we gather the wigglers from the pond, or from that little artificial pool, "the rain barrel," at the corner of the house; and, while they sport in a fruit jar covered with gauze on the desk before us, tell us in a peculiar language, all their own, the

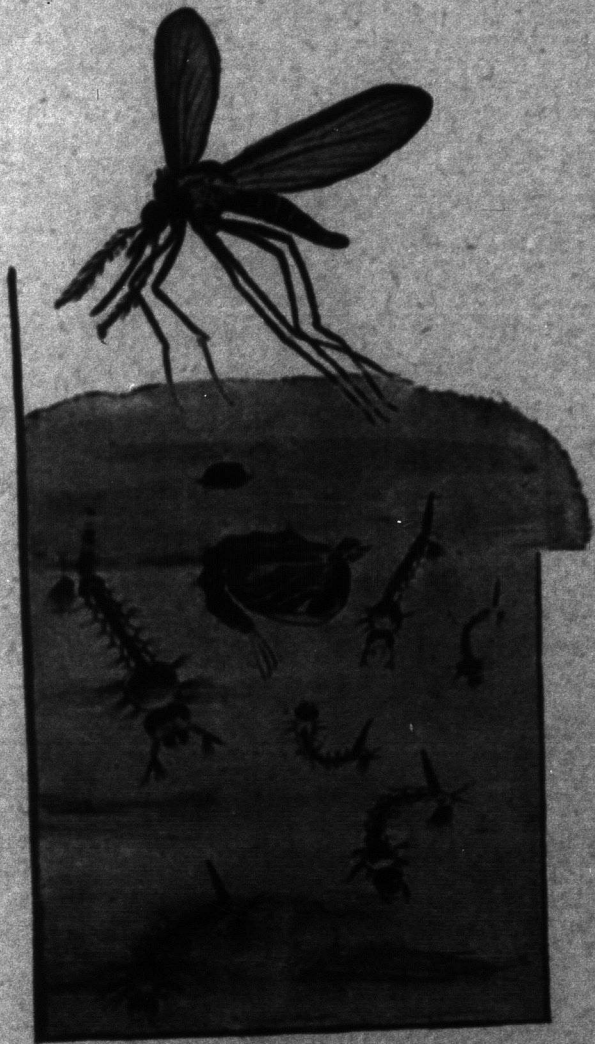


FIG. 1.—Stages illustrating the Life-cycle of one of our ordinary Mosquitoes. (Much enlarged).

wonderful story of their life. The story is so eloquent, grand and inspiring that it more than repays one for the time and trouble of making such collections and carrying out the observations.

Such work gives one a wider horizon; it is a pushing aside of the veil of mystery, it is an entering into the holy of holies, when a child comes to know through his own efforts and powers new facts in nature. It is a new freedom for the imprisoned soul, a freedom that makes one free indeed! Witness the triumph when the child comes to know for himself that the busy little mosquitoes, that serenade him so freely on summer evenings, lived the first part of their life-cycle, and had many

interesting experiences among the fishes, tadpoles, and other forms, in the quiet pools along the brook.

The accompanying illustration (Fig. 1) showing the changes in the life-cycle of this insect, may be of help to teachers in determining and directing work on collections brought in by their pupils.

The adult, winged form, is hovering over the water, and directly beneath it is a raft of eggs floating on the surface. They hatch in from one to four days. The larvae are the well known wigglers such as are shown in the right and the left of the picture. Examine them closely and note their characteristic form, the large head and thorax, and the long squirming segmented abdomen. As they rest at the surface of the water they breathe through respiratory tubes, thrust through the surface film to the air above. After molting twice, in the course of five or six days, they pass into the pupa or resting form, shown in the centre of the picture. The pupa has the head and thorax remarkably enlarged and it breathes by respiratory tubes which project from the back of the thorax. Examine it closely to see if you can determine whether it breathes air or water. Touch the pupa with a straw or pin. It is active when disturbed, thus differing from the pupa of most insects.

The pupal stage continues from one to three days, and from it emerges the winged form. In this stage the males differ from the females in having feathery antennae and the absence of piercing stylets. The female is well known by her strong thirst for blood and her happy little "song." When she is not fortunate enough to find victims among the other animals she joins the male in feeding on the juices of plants.

There are many different kinds of mosquitoes, most of which develop in water as above described, but some kinds in arid regions, remote from water, pass the larval and pupal stages in the ground. Reports have just reached the writer that, during the past summer, wigglers have been found in small quantities of water in the flower-cups of pumpkin and squash. Are they ever found in the water in the leaf of pitcher plant?

The segmentation of these and other forms as we meet them should be kept in mind. Compare them on the one hand with the earth-worm in which the segments are practically all alike, and the vertebrae on the other, in which the evidence of that plan of structure is very much masked—indicated chiefly by the series of vertebrae in the spine, the paired nerves from the brain and the spinal cord, and the intercostal muscles. Biolog-