

as Orthoptera. Look up the derivation of this term in a dictionary, and after examining members of this order, note how appropriate the name is.

The fore wings are thickened, serving as a protection for the hind wings, which when at rest are folded or plaited like a fan.

The young when hatched from the eggs are of the same general form as the adults, and gradually attain the adult size by a series of molts, i. e., the development is said to be direct, or in other words, the metamorphosis is incomplete.

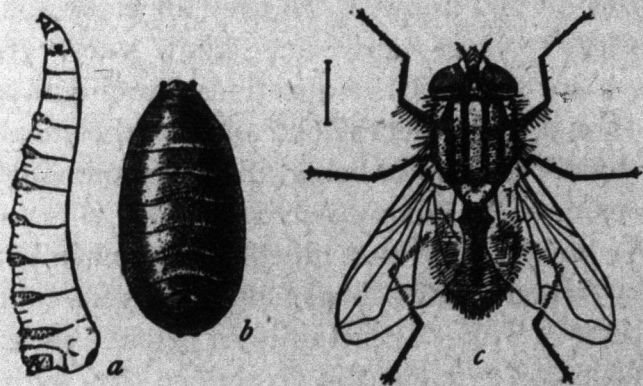


Fig. 2. The House-fly, [enlarged] a, Larva; b, Pupa or Puparium; c, Adult.

FLIES.

Examine a house-fly, (*Musca domestica*). Note the division of the body, head, thorax, and abdomen. How many pairs of legs has it? Is it a true insect? How many pairs of wings do you find?

Upon close examination you will find small rudimentary hind wings. They are called balances. In the crane-fly, a form which looks like a large mosquito, the balances are quite prominent and end in a little ball or knot.

The term "fly" is often indiscriminately used for all small flies with membranous wings, but strictly it is applicable only to the two-winged insects,—Order, Diptera. What is the derivation of this word? Derive the names of other orders of insects as you meet them from time to time.

This is a large and important order, containing about seven thousand American species.

The mouth parts are fitted for piercing, sucking or lapping. As pictured in Fig. 2. the larva is much unlike the adult in all the species, and is followed by a resting stage, the puparium, i. e., the metamorphosis is complete.

There are hundreds of different kinds of flies in Canada. Among some of the more common are horse-flies, bot-flies, blow-flies, the ox warble fly, sheep bot-fly, mosquitoes, gnats, horn-flies'

stable-flies, Hessian-fly, the typhoid fever or house-fly, crane-flies, etc., etc., Many of these are very injurious to man, his crops, and animals.

The house-fly has long been considered a nuisance about the house, and it is now known as the principal insect agent in the spread of typhoid fever.

Its habits and life history are well known. It hibernates, sheltering itself in cracks and crevices, and is occasionally seen about the house during the winter. They breed chiefly in stable manure and door-yard filth, during the summer. The eggs, numbering about one hundred, hatch in about a day into smooth white conical, almost transparent, footless larvae, called maggots. The larvae feed for about a week, molting twice, and then pupate, remaining in the resting stage another week, when the winged form appears. In a summer the descendants of a single pair may reach an incredible number.

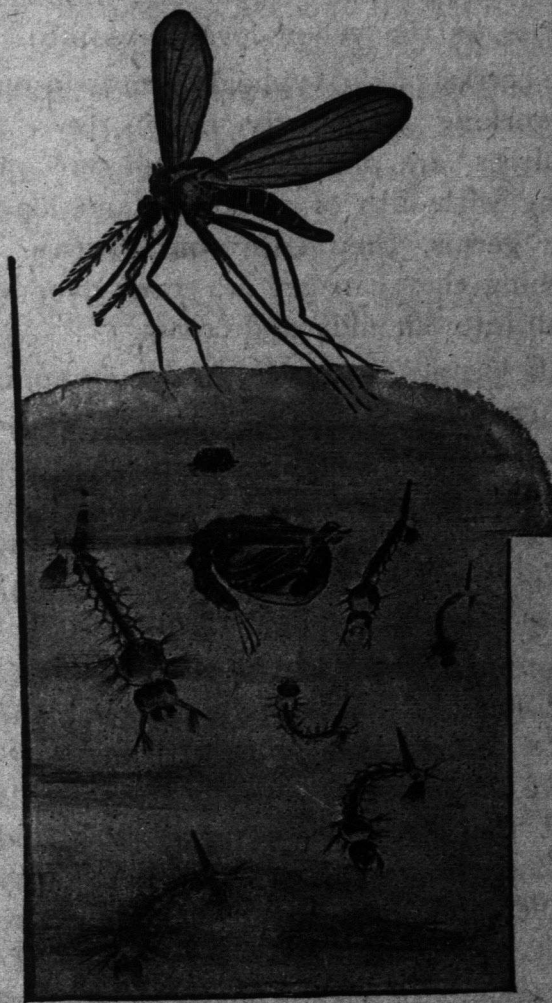


Fig. 3. Life History of a Mosquito, [*Culex*]. [Much enlarged.]

In Fig. 3. note the adult, winged form of the mosquito, just above a small raft of eggs floating on the surface of the water. Several long slender larvae are in the water, they are often known as "wrigglers" or "wrigglers." Examine rain