

strong to be controlled by those parasites which, doubtless, formerly held them within bounds; but even among these, were the partial checks removed, we should very soon feel their loss, and, perhaps, better appreciate their value.

The term parasite, as used in this country, is of a somewhat general meaning. Thus, the louse is a true parasite because it lives and has its home upon the body of its host, and while extracting its nourishment therefrom does not necessarily destroy life. The bee moth, *Galleria cerreana*, Fab., although it may cause the death of an entire colony of bees, is not a parasite at all, but simply a mess-mate. It does not devour the bees, but simply robs them of their store of food.

Our beneficial insects are of neither one of these two classes, because they not only feed upon the body of their host, but cause its death thereby; for this reason, that class of insects, which in this paper are termed parasites, are, by most foreign naturalists, designated as cannibals, which is really the more proper term. All beneficial insects are not necessarily cannibals, however, the scavenger beetles being a notable exception, while on the other hand, the cannibals are not all of them beneficial, as some of them destroy those which are directly engaged in preying upon the injurious species.

Of the beneficial cannibals we have two classes. First, such as deposit their eggs in or upon the body of their victim, the young hatching therefrom, feeding upon the living tissue. Second, such as catch and devour their prey, or extract the juices from it, rejecting the more solid portions of the body. The first of these classes is composed almost entirely of insects belonging to either one or the other of the two orders, *Hymenoptera*, the most numerous, and having four transparent wings, and *Diptera*, or flies, which have but two wings. The second class is made up of a vast multitude of insects, belonging to all orders. Some of these are cannibals in the larval or worm stage only, others during all of their stages of development.

The parasitic *Hymenoptera*, which so largely compose the first class, nearly all belong to one or the other of the three families. Ichneumon flies, *Ichneumonidae*, egg parasites, *Proctotrupidae* and the *Chalcididae*. The first are described as being readily recognised by the usually long and slender body, the long, exserted ovipositor, which is often very long and protected by a sheath formed by four stylets, of the same length as the true ovipositor. *Thalessa lunator*, so called on account of the crescent-like spots across the body, is a good illustration of one portion of this family. With the aid of her long ovipositor, the female is able to probe the burrows of wood-boring larvae and deposit her eggs in their bodies. *Pimpla pedalis*, Cress., and *P. conquisitor*, Say., are both parasitic on the tent caterpillar, while *P. annulipes*, Br., commonly called the ring-legged pimpla, is parasitic on the larvae of the codlin moth. Two other allied species, *Bracon charus*, Riley, and *Labena grallator*, Say., destroy the flat-headed apple tree borer. Another, a Braconid, *Modus carinoides*, Cress., attacks the apple-bud worm, *Eccopsis malana*, Fld.

Other species, *Sigalphus curculionis*, Fitch, and *Thersilochus conotracheli*, Riley, attack the larvae of the plum curculio. The former during one season, in the vicinity of St. Louis, Missouri, was found by Dr. Riley to have destroyed three-fourths of the early developed larvae of this pest. The long-tailed