

A not infrequent question is "What is an Insect?" and for the benefit of many who have not opportunity to study entomology, yet to whom some knowledge of the subject is important, it may be answered by the author's brief and clear definition of the class Insecta; or Insecta Hexapoda.

"Insects are small animals, having the body divided into three regions placed in longitudinal succession, head, thorax and abdomen: they take in air by means of tracheæ, a system of tubes distributed throughout the body, and opening externally by means of orifices placed at the sides of the body. They have six legs and a pair of antennæ; these latter are placed on the head, while the legs are attached to the thorax, or second of the three great body divisions; the abdomen has no true legs, but not infrequently has terminal appendages and, on the under surface, protuberances which serve as feet. Very frequently there are two pairs of wings, sometimes only one pair, in other cases none; the wings are always placed on the thorax. Insects are transversely segmented—that is to say, the body has the form of a succession of rings; but this condition is in many cases obscure; the number of these rings rarely, if ever, exceeds thirteen in addition to the head and to a terminal piece that sometimes exists. Insects usually change much in appearance in the course of their growth, the annulose or ringed condition being most evident in the early part of the individual's life. The legs are usually elongate and apparently jointed, but in the immature condition may be altogether absent, or very short; in the latter case the jointing is obscure. The number of jointed legs is always six."

The amplification of this definition and the exposition of the external and internal structure, and of the functions of the various organs, occupy two chapters. Referring to Parthenogenesis, or "the production of young without the concurrence of the male," which sometimes occurs, the remarkable fact is noted that in a few species of saw-flies, gall-flies and scale-insects no male is known, so that they must be considered as perpetually parthenogenetic. The next chapter gives a valuable summary of the embryology and metamorphoses. While the vast majority of insects are oviparous, the eggs deposited varying greatly in number, size and shape, a few species bring forth living young, as in the Aphididæ (green-fly or plant-lice), which thus multiply with extraordinary rapidity. A brief chapter follows on the classification, and it can readily be understood that diversity of opinion has existed, and may long continue, as to the most satisfactory arrangement of the vast hosts of insects. As some 250,000 species have already been described, and several times that number undoubtedly exist, any scheme of classification must, under our present knowledge, fail to adequately provide for the reception of every form. Dr. Sharp points out that owing to the present limited knowledge of the earlier stages of insects, the only complete system of classification yet possible must be based upon the structure of the adult forms. It is noted with pleasure that he does not consider it necessary to make so many orders or primary divisions as has been the tendency of recent authors. Instead of twenty, as recently proposed by Packard, he limits them, much to the advantage of the ordinary student, to nine, viz., Aptera, Orthoptera, Neuroptera, Hymenoptera, Coleoptera, Lepidoptera, Diptera, Thysanoptera, and Hemiptera.

The Aptera are designated as "small insects, with weak outer skin, destitute throughout life of wings or their rudiments, but with three pairs of legs; antennæ large or moderate in size." It is pointed out however that this definition does not clearly differentiate them from many of the young individuals of other orders, and that the order does not, as its name might indicate, include all wingless insects. Two sub-orders are present: Thysanura, with the abdomen composed of ten segments, and Collembola, of not more than six. The study of these insects is attended with more than ordinary difficulty, as their habits and fragile structure make them troublesome to collect and preserve. Campodea, supposed by many authors to represent one of the most primitive types of insect, and therefore of unusual interest, is said to be "so extremely delicate that it is difficult to pick it up, even with a camel's hair brush, without breaking it." The Collembola are the "Spring-tails," two of the three families having the abdomen provided with a leaping apparatus which enables them to jump about in a very vigorous