

Entomology.

A Bird's-eye View of the Insect World.

THE insect world constitutes a very important and interesting department of animated nature. Its population is immense, there being more than a hundred thousand different species in existence. You find members of this vast family everywhere. Some people the air; others the water; some live in the ground; while others find a home on plants, or on the bodies of animals. Most of them are subject in the course of their lives to wondrous changes or metamorphoses, so that the same insect, at different ages, might be mistaken for as many different insects. They possess the faculty called *instinct*, many of them in a very high degree. Indeed, some of them, under certain circumstances, display it so remarkably, that it approaches the exercise of the reasoning power in man. Many of the insect tribes perform the most useful functions, while others are noxious and mischievous, but there is scarcely one whose habits are not deserving of attention, while some read lessons of wisdom fit even for the ear and heart of the lord of creation—man—himself. Our object in the present article, will be to give a general view of the insect races according to the classification usually adopted. Linnaeus, the great Swedish naturalist, divided insects into *seven orders*—distinguished more especially by peculiarities connected with their wings. This ingenious arrangement is considered the simplest and best ever adopted.

I. The first order is called *COLEOPTERA*, from two Greek words meaning *sheath-winged*. They have two pairs of wings, the first, or outer pair, serving as a sheath or protection to the second or inner pair, which are much the larger. This insect family is commonly known by the name of *beetles*. Like all insects, they are egg-produced, and undergo curious changes. The egg hatches into a soft-bodied grub or maggot, that in turn changes into a cocoon, (or pupa,) covered with a thin, transparent skin, and out of the cocoon (or pupa) at length comes forth the perfect beetle, its entire body covered with a horny skin, furnished with nippers to masticate its food. Feelers, or *antennae*, supposed to be organs of hearing, and having under-wings so sheathed by the upper ones, that they seem to form one solid mass with the body. Beetles have been subdivided into three natural families, according to the food on which they subsist.

1. *Carnivorous Beetles*, which like lions and tigers among beasts, prey upon other living beings. The *Coccinella*, or *Lady-bird*, belongs to this class; so also does the *Tiger-beetle*, the *Caterpillar-Hunter*, &c. These insect hunters make great havoc among smaller insects, and prevent our being overrun with plagues like those of Egypt.

2. *Scavenger Beetles*, which live on putrid matter, carrion, decayed wood and plants. This is a numerous family. To it belong the *Hercules* of South America, an insect-giant; the *Brown Dung Beetle*, which may be seen in horse and cow dung on the roads and in the meadows; the *Pellet Beetle*, which spends its time in making pills like an apothecary; the *Stag Beetle*, or *pincer-bob*, the *Indian Cetonia*, the *Fungus Eater*, &c. The *Carrion Beetles* are curious and useful members of this family. It is their business to dispose of dead carcasses: the most remarkable of them is the *Big Grave Digger*, so called from the singular manner in which it diligently buries dead frogs, birds, mice, or other small animals.

3. *Herbivorous Beetles*, which feed on vegetable substances, and are many of them sad pests to the farmer and gardener. Some attack the green branches of trees, others burrow into the ground and gnaw the roots, others show a fondness for fruit and seeds; whilst others devour the leaves of plants. The *Snout Beetle*—so called because their head is prolonged into a bill-like pointed snout—belongs to this class. They are very destructive little creatures. The *Wheat Weevil* is one of this species. So also is the *Pea Weevil*.

II. We now come to the second order of insects, called *HEMIPTERA*, from two Greek words, signifying *half-winged*. They are so named from their wings being half coriaceous or leathery, and half membranous. Their chief peculiarities are, first, the possession of *suctorial organs*, consisting of a long horny proboscis with two pairs of bristles, which they insert into the animal or vegetable bodies on

which they live for the purpose of extracting their juices; and secondly, the nearly perfect condition in which they commence life. They pass through no changes like the beetle family, make no cocoon or chrysalis, and have, when they burst from the egg, six legs and a proboscis, but no wings. The *Cicadas* constitute an exception to this general rule, and are supposed to live in a larva state two years or more in the ground. These insects feed mostly on the juices of plants, but some of them pump out the circulating fluid of insects, and even the life-current of warm-blooded animals: on account of which they become very annoying and troublesome to man. The *Aphides*, or *Plant Lice*, belong to this family, and are very destructive to vegetation. The *Red-eyed Cicada*, or *Seventeen Years' Locust*—so called from its being supposed to appear once in seventeen years—also belongs to this second order. So does the *louse*, that—

“Ugly, creeping, blastic wouser,
Detested, shunned, saunt and sinner.”

The *Bed-bug*, the *Squash-bug*, the *Tree-hopper*, the *Bark louse* take rank here also. The *bark-louse* is very injurious to fruit orchards. The *Cochineal* insect, used for dyeing the most brilliant red and purple, and the *Coccus Lacca*, which produces the gum-shellac of commerce, likewise belong to the *Hemiptera*.

III. The third order of insects is named *ORTHOPTERA*, or *Straight-winged*,—so called because their wings are folded in a straight or longitudinal manner. The insects of this order have transversely moveable jaws, membranous wings, (a few have no wings,) six legs, and undergo no metamorphosis. The *Grasshopper* family belongs to this order. These are sometimes very mischievous even in this country, it being no rare thing to hear of the hay crop having failed because of their depredations. In European and Oriental countries they are sometimes an awful scourge. The *Katydid*, *Cricket*, *Cockroach*, *Spectrum* or *Walking-stick*, are *orthopterous* insects.

IV. We now come to the fairy region of the insect world,—the order of *Moths* and *Butterflies*,—styled *LEPIDOPTERA*, or *Scale-winged*,—so called from their wings being covered with what seems to be fine dust, but is in reality *minute scales*. They are also distinguished from other insects by having four expanded wings, with few exceptions, and hairy bodies. They are oviparous, and lay their eggs on the plants which form the food of their progeny. From these eggs proceed caterpillars, which, on attaining their full growth, cast their skins, and become chrysalides or cocoons. Some of these cocoons are suspended from the branches of trees, others are buried in the ground and remain torpid through the winter. In due time the chrysalis bursts its skin, and becomes a perfect butterfly or moth,—a gay inhabitant of the upper air. The *Silk-worm* *Moth* belongs to this order. It is a tender, delicate, short-lived little creature; yet how much it accomplishes! The richest garb in which youth, beauty, nobility, and even royalty can be arrayed is the product of its skill. There are about 1,200 species of *Lepidoptera* in North America. This order has two grand divisions, the *Nocturnal Lepidoptera*, such as *moths*, *millers*, &c., which are recognized by their having antennae without a knob at the end, and *Diurnal Lepidoptera*, or *Butterflies*, which are known by their having a knob at the end of each antennae. Some of this order, in the caterpillar state, are very injurious to vegetation, e.g., the *Tent Caterpillar*, *Grain Moth*, &c., but when perfectly developed they are harmless, with few exceptions, among which may be named the *Bee Moth*, the pest and dread of Aparians.

V. The fifth order is called *NEUROPTERA*, which signifies *net-winged*. They are principally characterized by their delicate wings, which resemble the finest net-work. The Germans call them, very expressively, “gauze-flies.” Their bodies are long, thin and soft; their wings long, narrow, and almost transparent. They generally deposit their eggs in ponds, in which the grubs or larvae which issue from them live one or two years, subsisting on water plants, and partly on other aquatic insects, until they change into perfect-winged insects, when they abandon the water and take to the air. The different genera of this order are quite numerous. Conspicuous among them is *Libellula*, the *Dragon-Fly*, sometimes vulgarly known as the *devil's darning needle*. This insect was regarded by Linnaeus as the typical genus of the order *Neuroptera*. The *Water Moth*, *Horned Corydalis*, and *Day Fly*, or, as it is frequently called, the *May Fly*, belong to this order. The latter is an interesting insect, on account of the suddenness of its transformation from the grub to the winged state, and the short duration of its aerial life.

VI. The sixth order of insects are styled *HYMENOPTERA*, or *membrane-winged*. They have four membranous wing, and the tail of the female is usually armed with a sting. The whole tribe has since been called *Aculeata*, stingers, or piercers. Wasps and

bees are familiar members of this family. All the insects of this order are more or less useful to man. They collect honey and wax, beautify our flower gardens and render our orchards fruitful by distribution of pollen, or they rid us of noxious caterpillars and other troublesome insects. Though when provoked they take revenge upon us with dagger and venom, yet, like our irritable fellow creatures of the genus *homo*, we have only to mind our own business, and give them a good letting alone, to escape all harm. The *Gall Wasp*, the *Ichneumon Wasp*, the *Hornet*, *Honey Bee*, and the *Ant*, are *Hymenopterous* insects.

VII. Only one order now remains to be noticed: it is named *DIPTERA*, or *two-winged*. Little need be said respecting a class of insects so well known as flies. The number of genera of this order is immense. The leading members of the *diptera* family in North America are—the *Gad Fly*, the *Bot Fly*, the *Horse Fly*, the *House Fly*, the *Meat Fly*, the *Hessian Fly*, the *Cheese Fly*, the *Flea*, and the *Mosquito*. The *Hessian Fly* is a very small insect, but capable of doing immense mischief to the wheat crop. It has occasioned the loss of uncounted millions of dollars to the farmers of this continent. The *Flea* takes rank among dipterous insects, though destitute of wings, from the fact that its characteristics are more like those of the *fly* tribe than those of any other order of insects. They undergo very much the same changes as two-winged insects in their progress from the egg state to the fully developed condition.

This very brief sketch of the outlines of Entomology will, we trust, be of service to our readers, in enabling them better to understand and arrange in their own minds the facts respecting insects injurious to vegetation on the farm and in the garden, to which we shall hereafter call their attention.

Birds and their Uses.

THE following facts, derived from correct sources of information, of the question how to get rid of the worms.—Baron Von Tschudi, the well known Swiss Naturalist says:—“Without birds, successful agriculture is impossible.” They annihilate in a few months a greater number of destructive insects than human hands can accomplish in the same number of years. Amongst the most useful birds for this purpose may be classed the *Swallow*, *Wren*, *Robin*, *redbreast*, *Titmouse*, *Sparrow* and *Finch*. Tschudi tested a *Titmouse* upon rose bushes of his neighbor, and rid the same in a few hours of innumerable lice. A *Robin* redbreast killed in the neighborhood 200 flies in an hour. A pair of *Night Swallows* destroyed in fifteen minutes an immense swarm of gnats. A pair of *Wrens* flew thirty-six times in an hour with insects in their bills to their nests. He considers the *Sparrow* very important; a pair of them carrying in a single day 300 worms or caterpillars to their nests—certainly a good compensation for the few cherries which they pluck from the trees. The generality of small birds carry to their young ones, during the feeding period, nothing but insects, worms, snails, spiders, &c. Sufficient interest should be manifested by all to prevent the discharge of fire arms in the vicinity of orchards, vineyards and flower gardens, as thereby the useful birds become frightened.

A HINT TO FARMERS.—The correspondent of the *London Star*, in Schleswig, says: “A pleasing phenomenon, which I had before remarked in every part of the duchies I had hitherto visited met my eye again on the drive to Christiansfeld. On the outside of every cottage and farmhouse we passed—even, indeed, on many of the trees by the roadside—hung several little square wooden boxes, rather bigger than a London quatern loaf. In the centre was a small round aperture, large enough for any bird from a wren to a thrush to go in and out. On inquiry I found that these little contrivances were, what they appeared to be, homes for any little pair of warblers which pleased to build their nests in them. Some years back the farmers were justly punished for the devastation which, under the influence of false ideas, they had made amongst the feathered tribe, by the vast increase of insects which played havoc with their crops. Like sensible men, they were no sooner convinced of their error than they did their best to remedy it. Societies for the preservation of birds were soon formed; the farmers everywhere did their best to forward the objects of the association, and bird-murder became a misdemeanor. As the consequence of these measures the country is now plentifully stocked with numerous classes of birds. Flocks of crows, ravens, larks, fieldfares, linnets, and yellow-hammers, as well as other kinds, are to be seen wherever one drives, and appear to have lost much of their natural timidity under the good treatment they have received of late years.”