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ON SOME OF OUR COMMON INSECTS.

9. THE DRAGON FLY—*Libellula trimaculata*, DeGeer.

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This insect belongs to the order Neuroptera, which term signifies nerve-veined, so-called in consideration of the netted structure of the wings. The members of the particular family (*Libellulidæ*) to which our specimen belongs, rival many of the Butterflies in their graceful shapes and brilliant colouring, while they excel them in rapidity of flight. These insects have received various popular names in different countries—the French call them Demoiselles, the Germans Florfliegen or Gauze-flies, or Wasserjungfern or Virgins of the Water, while the English style them Dragon-flies, Horse-stingers or Devil's Darning-needles. The English terms, although less poetical than those of our European friends, are, we believe, in a measure more appropriate to the private character of these insects, who fully earn the title of Dragon-flies, although they are not Horse-stingers; of the third title we can say nothing.

Our specimen, *Libellula trimaculata* (fig. 19), when full grown may

Fig. 19.

be described as follows: The body is much elongated and cylindrical, and attains a length of two inches, in average specimens. The head is

large and bears two very large and prominent compound eyes. These eyes, which consist of many thousand facettes each, are so large that they meet on the upper surface of the head. This great power of vision is still increased by three simple eyes, or ocelli, situate on the upper surface of the head. From the front part of the head project two short, tapering antennæ. The mouth occupies the front under surface of the head, and is a most formidable structure. The upper lip is broad, and conceals very powerful toothed organs, called mandibles; other organs of the mouth are also armed with strong teeth, which enable the creature to satisfy its carnivorous desires. The most remarkable portion of the mouth, however, is the lower lip, a large, flat, lobed organ, closing the mouth from the under side, and which may be projected forward to a comparatively great distance when attacking other insects.

The thorax, or middle portion of the body, is three or four times as long as the head, and very much greater in diameter. It resembles the head in colour, being a medium chocolate shade, and is sparsely clothed with very short hairs of the same hue.

The abdomen, or posterior part of *L. trimaculata*, tapers very gradually to the end, and is much smaller in diameter than the thorax, but more than twice its length. The colour is slightly paler, and is relieved by a line of pale yellowish blotches along each side, which gradually become smaller in size toward the end of the body. The upper surface is arched, while the under is flattened.

The legs are six in number, and are attached three to each side of the lower surface of the thorax.

The wings, which are four in number, are attached two to each side of the upper surface of the thorax, and are about one and a quarter inches long, and three-eighths to nearly half an inch in breadth; the front ones being slightly the narrowest. The substance of the wings is a very delicate net-work covered by a thin transparent membrane having a shining surface. From the place of attachment of each wing there proceeds a narrow elongated patch of a deep brown colour, while from about the middle of the wings there is a large irregular patch of the same colour, which extends completely across. The structure of the wings combines great strength with lightness, thereby enabling the insect to fly with very great rapidity. Their shining surface, transparency, and brilliant colouring in this and other members of the same order, combine to give them a

beautiful appearance when flying in the bright sunshine, and evidently suggested the popular names given to them by the French and Germans.

The Dragon-fly is usually found in the vicinity of small streams or ponds, for reasons we will soon give. On bright and warm days in July and August it may be seen skimming over the surface of the water or ascending in graceful curves into the air, in search of food. When it rests, its wings are expanded horizontally.

Notwithstanding their graceful and "Demoiselle" appearance, they are most bloodthirsty creatures. Their rapid flight and enormous range of vision enable them to capture other insects with ease, while, their taste not being limited, they can consume butterflies, moths and other insects without compunction, and they are known to destroy and eat each other, as well as very small fishes (Figuier). However, it is this ravenous propensity which makes this insect so very valuable to man, as they destroy immense numbers of other insects which are injurious to vegetable and other products, and do not injure these substances themselves. A few of them shut in a house will soon rid it of flies, bugs and mosquitoes, and therefore their presence should be welcomed. The popular opinion that they are dangerous to man is without foundation, as they can neither bite, sting or poison him.

We may now consider the development of *L. trimaculata* from the egg, as it furnishes some very curious and interesting information.

When the female is about to deposit her eggs, she attaches herself to some plant growing out of the water, and pushing her abdomen beneath the surface, glues a bunch of eggs to the submerged stem or leaf (Uhler). These eggs produce larvæ which have a distant and ugly resemblance to the perfect insect. The larva is active and passes its existence in the water, feeding on numerous weaker insects. It possesses a curious syringe-like apparatus situated in the end of the body, by which it discharges a stream of water for a distance of two or three inches behind it, thereby propelling the insect forward. The motion thus given is most irregular, and appears to be beyond the control of the larva. This curious arrangement serves for respiration as well as locomotion.

The larva soon reaches the pupa state (corresponding to the chrysalis state of a butterfly), in which it is also active, crawling over the bottom of the stream preying on other insects. In this state it is longer than the

larva, and still more resembles the perfect insect. The accompanying figure (No. 20) of a pupa of a species of *Æschna*, nearly allied to *L. trimaculata*, will give an idea of the appearance of that of our Dragon-fly.

When about to become a perfect insect, the pupa climbs up some suitable plant near the surface of the water, and attaching itself firmly awaits the last great change. In a short time the skin opens down the back, and the adult Dragon-fly, by bending backwards and forwards for some time, emerges. It only requires to remain a few hours till its wings attain their full size and hardness, when it starts off on a life-long expedition of plunder.

REMARKS ON RECENT NAMES GIVEN TO SOME LEPIDOPTEROUS INSECTS.

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Looking over some recent papers, by one of our most careful and distinguished naturalists, well known by his contributions to all branches of Natural History, but more particularly to Lepidopterists by his *exhaustive* studies on the genera of North American Bombycidae, we were surprised to see the numerous and apparently unnecessary repetitions of the same specific name in closely allied genera and families.

In a single article on the Phalaenidæ of California, there are in this group alone *ten* species named *Californiaria* or *Californiata*. If the Phalaenidæ were an immense group, containing many distinct generic types but loosely connected by intermediate forms, so large a number of species of the same name would be opposed to all precedent in nomenclature. But, on the contrary, there is no group so compact, none in which the genera are so difficult to define, and united by stronger and