

seen hovering over the ponds where there are water-snakes. On the continent of Europe they have more pleasing names. In France, they are *Democelles*, or "ladies," and in Germany *Wasserjungfern*, or "Virgins of the Water." In traveling in the Southern States, I had heard them often called "Mosquito Hawks," and was told that they devoured so many mosquitoes that it was considered wrong to kill one of them. At last I had an opportunity to learn that, for once, a popular notion was correct. One excessively hot day in June, I happened to

placed. If you put them in an aquarium, there will after a while be little else left, at least of the smaller inhabitants, for they attack creatures much larger than themselves. It is difficult to say which is the most curious in the "Water-tiger," (which is a convenient and shorter name for the Dragon-fly larva), its head or its tail. Curiously enough, the creature breathes through its tail! You no doubt know that fishes breathe through gills placed in the head, and as the water flows over these, they take up the air that is dissolved in the water, and thus carry

remaining apparently lifeless for some time, and at length break their enclosing shell or skin, and come out a perfect butterfly, moth, or beetle. But the Dragon-flies are quite too busy to keep still, and even in the pupal state are as lively and greedy as ever. They change their skin, and show by a hump, where their future wings will be, and the eyes of the perfect insect may be seen under the skin, but as to keeping quiet, it doesn't know how. At last its time comes, and the pupa crawls up the stem of some plant, and leaves the water forever. Instead of



THE LIFE HISTORY OF THE DRAGON-FLIES ILLUSTRATED.

be on Lake Ponchartrain, not far from New Orleans; there were several pleasure houses, to which the people came from the city in the cool of the evening for a drive, and for ice-cream and other refreshments. These places were mere sheds, or shelters, and on the inside of them were mosquitoes by the million, resting in the heat of the day, to be all fresh to receive the evening visitors. I never before, or since, saw so many mosquitoes, for they were so thick as to make the sides of the building look gray. There were also hundreds of Dragon-flies—good, big fellows—which flitted about and fed upon the mosquitoes at such a rate, that I saw at once that they were well named "Mosquito Hawks." When we see these insects so busy darting here and there, they are no doubt hunting for mosquitoes and other insects upon which they feed. The engraving shows one of the Dragon-flies on the wing, and gives an idea of the general appearance of all, though many are much smaller in the body, and in spread of their wings. But the early life of the insect is quite as interesting as that of its perfect or winged state. The female insect places her eggs upon the stems of water plants, just at, or below the surface, and from these hatch out the larvae; or the first form of the insect. The larvae of the butterflies and moths we know as caterpillars, and that they live on plants on the land, but the larvae of some insects, including the mosquitoes and Dragon-flies, live entirely in the water until they are ready to change into perfect insects. The larva of the Dragon-flies is sometimes called the "Water Tiger," and well deserves that name, for it is one of the most voracious of living creatures. The insect in the water at the lower part of the engraving—the one directly in the center—shows the larva as it usually appears. These "Water Tigers" may be found in ponds and muddy ponds, and in still places along the margins of rivers, and, though not handsome to look at, they are very interesting to watch. If you wish to study their ways, you can easily catch them with a small net, and put them in an aquarium, or what is better, a jar by themselves, in which some water plants are

on a slow kind of breathing. But in the "Water-tiger" its gills are placed near its tail; it takes in water there through an opening, and forces it out again, and that is its way of breathing. But this opening answers another purpose. The animal crawls quite slowly, and as it is a great feeder, it would not get much food, did it depend solely upon its legs. If you watch one of them in search of food, you will be surprised to see the sluggish fellow dart for its prey with the greatest speed, and this motion is one of the many strange things about the creature. Ordinarily the water passes out of the opening in the tail quite slowly, but when necessary, the insect can force the water out with a sudden squirt, and that pushes it along through the water with great swiftness, upon the same principle that a rocket is sent through the air. Not less curious are the arrangements at the other end of the insect—at the head. As usually seen, it appears as in the figure at the middle of the lower part of the engraving, a quiet and rather harmless looking larva. But let a small insect or other animal come within reach, and presto, the mild looking fellow shows a savage pair of pincers, and becomes the very tiger-fish animal seen in the right-hand lower corner of the engraving. This arrangement for taking its prey is called a "mask," and when not in use, is bent down under the head of the insect, and quite out of sight; it is so arranged that whatever is caught by the jaws of this mask is brought, when that is folded under, right opposite to the true mouth of the insect, where it can be eaten. These Water-tigers not only prey upon other water insects, but even devour small fishes, and seem to live only to destroy and eat other living things. They go on feeding and growing, some one year, and some, it is said, for two years, when the time comes for them to change to perfect insects—to leave the water, and begin a new life in the air. You know that when caterpillars and most other insects—as I have shown you on several occasions—make this change, they go into the pupal state, and either spin a cocoon, or form a chrysalis in some way,

breathing the water through its tail, it now has to breathe air through openings in its sides, and instead of propelling itself, rocket-like, through the water, it has to dart through the air, and for this it must have wings. All these are provided. The pupal skin at last bursts, and the perfect Dragon-fly slowly pulls itself out, as you see at the left hand of the engraving. At first the wings are damp, limp, and useless, but they gradually spread and dry—and what beautiful wings they are! They are worth a close examination; see the delicate frame-work, so curiously netted, with a beautiful membrane filling the spaces between; this is wonderfully thin and transparent, and the light often plays on it with rainbow colors. Can anything be more complete than this transformation—from an ugly inhabitant of muddy water, to a light and graceful creature of the air! But there is one thing which the Dragon-fly does not leave behind him with the remains of its former life—he has his appetite, and skims away through the air, devouring other insects, quite as effectively, as it did before as a "Water-tiger." There is one thing about the perfect insect, you will not fail to notice—that is the great eyes, or rather masses of eyes, as the microscope shows them to be; these, while the insect is alive, have beautiful colors; besides these, there are three little single eyes, usually placed in a row on the front of the head. So far from the Dragon-flies being dangerous, we may look upon them as not only harmless, but so far as they destroy mosquitoes, as really beneficial insects—at any rate, I hope that I have shown you that they are really interesting ones. I have said nothing about the scientific names of these insects, their being several different genera, or kinds, and only those who study entomology, will care to know the systematic names, but it is well to know that these belong to the division or sub-order *Neuroptera*, which means *nerved-winged*, and includes, besides the Dragon-flies, the May-flies, the Lace-wings, and besides others, the Caddis-flies, one of which I told you about, as the insect that builds a stone-house.

THE DOCTOR