

little eels of the pepper-corn of the wheat belong, are as striking as those that have been described in relation to the growth of moulds. The injuries we receive from insects are doubtless great; but we have our compensation in the benefits they confer upon us. When we look upon some of these separately insignificant portions of creation, their importance seems almost incredible. Who could suppose, on examining a minute cochineal insect, that this nation actually pays about five millions of dollars every year for the myriads of their dried tiny bodies which art has called into use? How wonderful is it to remember, when we may be sealing a letter, that the little gumshel-lac insect provides for us wax as an appendage to our writing apparatus, and that very large sums are yearly expended on its importation! When we look at a sluggish silkworm feeding lazily on some leaf, and consider it merely as the larva of a plain looking moth, and perceive its feeble movements and rather sickly aspect, it fills us with amazement to recollect that more than fifteen hundred thousand human beings gain their daily bread from gathering, winding, and manufacturing the web of the cocoon of such a caterpillar! Many other instances might be adduced to prove that though the insect tribes offer us much annoyance, and inflict upon us frequent losses, we are still largely their debtors. Like the fungi, also, they have assigned to them a most beneficial part in the grand economy of nature; and this is the removal of decomposing organic matter, and thus preventing disease from putrid exhalation. Every maggot that is bred in the dead body of any animal, or the tissues of any rotten plant, is performing this needful and beneficial function. For this purpose extensive powers of multiplication and great voracity, are evidently essential requisites. Hence we may see the reasons of the changes peculiar to the insect world, and of the multitude of eggs the various flies which are parents of larvæ continually lay. Small numbers could not perform the offices assigned them to any useful extent; nor, if insects passed at once into that state in which they are employed in the cares of reproduction, would they be able to carry on the work of feeding on putrid matter as their sole object. Hence we see the wisdom of God as applied to his designs. The design in this case has been explained, and we may perceive the adaptation. It is expedient that these insects, whose province it is to remove the injurious substances adverted to, should be wholly employed in this work. Accordingly we find these maggots in a state incapable of reproduction, and endued with what they require—an insatiable desire for constant feeding, and proportionate digestive organs. They pass into another condition before they begin the reproductive processes, which must interrupt their operation of constantly feeding on the superabundant and injurious matters which would otherwise destroy the healthiness of the air we breathe. The larva, therefore, has no propensity but a

constant appetite for food, and is the longest state of insect life. After this it is changed into a condition of inactivity, wherein, by certain slow processes, the perfect fly is formed, and subsequently disclosed, not to feed with the voracity of its maggot, but to lay multitudes of eggs in places suitable for the development of more larvæ. The object of its existence having been thus answered, it dies. Who can think of these marvellous transformations, and not admire the wisdom and power of God, nor fail to remember for himself, that, before he can perform the services of a better world, he must be transformed too, and that by the renewing of his mind? The same insect may be said, in certain cases, of live in several different worlds. It inhabits, in its successive conditions, water, earth, and air, while it is fitted for these respective abodes by new organs, instruments, and forms suited to each. Every one has some purpose. Can we have a better illustration of this than in Bonnet's celebrated remark: "Of what riches should we not have been deprived, if the silkworm had been born a moth without having been previously a caterpillar!"

Still the larvæ of many insects do the greatest injury to the produce of the farms of this country. For example, there is scarcely any species of cultivated plant free from their attacks. Wheat, rye, oats, and grasses are largely destroyed by them. These wire-worms are the larvæ hatched from the eggs of certain beetles. "It will probably," remarks Mr. Curtis, "surprise the general reader to learn that there are nearly seventy species of beetles in this country which are the parents of wire-worms: many of them, however, live in decaying trees, or under the bark; and the number that affect our crops of corn, vegetables, and flowers, is very limited." The beetles from which they spring, and into which they pass, are called *elaters*; and almost every farmer has an instinctive dread of these worms themselves. Yet not many of these persons know that the little long beetles called "skipjacks," which jump when laid on their backs in a wonderful manner, lay the eggs which produce these mischievous devourers. The *elaters*, or skipjacks themselves, feed only on flowers. The best account to be found of them is that by Mr. Curtis, who gives more hints for remedies than any other writer. The long time these wire-worms exist in their larva state, adds very much to the amount of mischief inflicted by them.

Generally speaking, the larva state is the one in which insects do most injury to corn; but Mr. Kirby mentions that the weevil devours it when housed in the granary, both in the *imago* as well as larva condition; and that a single pair of these insects will produce in one year about six thousand of their species.

Cereal plants are likewise attacked by larvæ of the willow moth, which consume the grains of wheat and the seeds of grasses. Flies, also, of various kinds, lay eggs that give birth to larvæ