

covered with a screen made of cotton cloth, to protect the young insect from a sort of fly which lays an egg among them, which in a few days turns into a caterpillar and does a great deal of mischief, devouring a large quantity of the young animals; after that period they are left open to the sun and air. It is so arranged that the insects begin to breed in the beginning of October, about which time the rains cease in Amatitlan, though somewhat later in the vicinity, and most other parts of the state.

"The insect is carefully removed from the leaves as soon as it begins to deposit its young, and put into small square pieces of muslin, calico, or the bark of a description of palm-tree, the latter being cheaper, and much preferable for the month of October, as it does not fall together when damp like a cotton fabric; the four corners are pinned together with the thorn of a bush (a species of mimosa), which is very abundant in the neighbourhood; after about a hundred of the insects have been put in, one of these packets, called by the natives *cartuch*, is attached to each leaf or two, or one to each side between two leaves, which latter method is generally preferred. If the weather is fine and warm, the insect breeds so quickly, that in a few hours each leaf contains a sufficient quantity of the small insect, when the bag must be removed and attached to another leaf; for if it is left too long, the leaf becomes too thickly covered with young insects, which, from being too numerous, cannot obtain nourishment; and never attaining the proper size, produce, when dried, a small grained and very inferior cochineal, called '*grancella*,' which is not worth more than half the price of the proper quality. As the cactus is always planted in rows of a certain length, it is usual to cover at one time the leaves of one or more rows with the bags containing the mother insect, and when they are sufficiently covered with the young animal, called *pejillia*, to remove and attach them to other rows of cactus.

"This may be done once every day if the weather is fine, but if it is windy or cold, they have often to remain three or four days without moving, for the wind blows away the young insects as they creep out of the bag, and prevents them from attaching themselves to the leaves. The insect does not breed so fast if the weather is chilly, and a large portion is often killed on the leaves; even a heavy dew will destroy many at the first stage. In the October seeding in Amatitlan, when it is never required to load the plant, the weather being fine and the mother cochineal in a thriving state, the bags may often be shifted, ten or twelve times before it has done breeding; but if the weather be at all unfavourable, or the mother cochineal in a sickly state, or too soon or too late gathered, it cannot be shifted nearly so often.

"When the mother cochineal is done breeding, or when the young insect begins to be sickly and of a dark red colour, the bags are taken off, and their contents shaken out and dried in the sun; and when sifted they form, what is denominated in the country *cascarilla*, and in England, black cochineal, which always fetches a higher price than the silver cochineal, the name given to it when the insect is dried before commencing to breed.

"During the first stage of its growth, as already remarked, the young insect is very easily injured, but when about ten days old, it is not nearly so easily destroyed. Still, as heavy showers of rain sometimes occur in October, it is nothing rare for the cochineal grower to find nearly all his labour and outlay lost, and a great part of his crop destroyed in a few minutes; but, when such misfortunes occur, all the growers suffer nearly equally, consequently the price is enhanced, and the loss is in some degree compensated by the increased value of what remains. In Amatitlan, such accidents only occur to the first crop seeded in October, the greater part of the produce of which is always used for seeding the cochineal estates in Old Guatemala in the month of January, and when the crop is not large, fetches a much higher price than it would be worth if dried for exportation. In about twenty days after the young insect has attached itself to the leaf, it changes its skin, which is called the first '*muda*' (change or transformation); and in about a month more it again undergoes the same process, at each of which periods it slightly shifts its position on the leaf. At the time of the second change, the male makes its appearance in the shape of a very small fly, but how it is produced is, strange to say, not quite determined; all the natives, and even the foreigners in Guatemala, who state that they have made experiments for the purpose of ascertaining it, assert that it is produced by the female at the second change, that is to say, about the middle of its growth; but this would appear quite impossible from all data in natural history.

"I had not leisure to make proper experiments, but an intelligent North American gentleman, a doctor by profession, who had done so, informed me that previously to, and some time after, the second transformation or casting of its skin, the male and female insects are nearly equal in number, and cannot be distinguished on the leaf; but that, about fifteen days after the first transformation, all the male grubs change into chrysalises, interring themselves in a downy covering, and weaving a small thread, let go