

## Entomological Department.

## Sembling.

On the 19th of June last a fine female *Cecropia* Emperor moth issued from its cocoon, which had been cut from an apple tree and kept in my study for some weeks. Being anxious to try the virtues of the process of "semling," I fastened its wings by an ordinary spring clip and exposed it on my verandah for several nights without success; the evenings were fine and cool. On the 23th, the evening being warm and misty after a shower, the moth was exposed as usual on an empty flower-stand, just outside of an open window; inside the room on a table a lamp was kept burning. About 11 o'clock, p.m., I entered the room and observed nothing but a few ordinary *Noctua* flying about; on returning, however, an hour later, I was amazed to find four splendid specimens of the male *Cecropia* quietly at rest upon the table and lamp; a few moments after a fifth came in and flew wildly about the room, succeeded in a little while by a sixth! They were all in excellent order and evidently fresh from their cocoons. As I had kept the female so long in confinement, I determined not to continue the experiment any longer; I accordingly dispatched five of the males with chloroform, while the sixth was left with the object of his attraction. The result was a large batch of eggs and subsequent larvae. As the female was entirely hidden from view underneath the window, and was not found by the males, who entered the room to the light instead, flying but a short distance over the fair one of whom they were in search, it is evident that they were guided to the spot by the sense of smell and not by sight. The light in the room could not have been the primary attraction, as it was so obscured by a table covered with creepers as to be hidden from view a few yards off.

Not long after I tried the same experiment with a female *Prionoxystus*, but with no success whatever, though the evenings were often favorable. This failure I attributed to the scarcity of its food plants in the immediate neighborhood (its cocoon was brought from a considerable distance), and the consequent absence of males within reach of the female's attractive powers.—C. J. S. B. in *Canadian Entomologist*.

Tent Caterpillars—(*Cistiocampa*).

These pests were very numerous here this season, swarming on the trees of both orchard and forest. I observed one thorn tree on Montreal Mountain that had been completely stripped of its leaves by them, leaving nothing but a few old webs that one might fancy were banners left to mark the path of a victorious army. A little further on I found another horde encamped upon two thorn trees that were growing on each side of a large rock; not finding the leaves of the tree on which their parents had placed them to their tastes, they made a path across the rock to the tree at the other side, and upon which they climbed by two or three leaves that rested against the edge of the rock. Now, if it had not been for the leaves touching the rock, the caterpillars would have had to crawl down one tree and up the other whenever they needed food, and their instinct seemed to have taught them so, for, although the whole nestful of hungry caterpillars crossed the leaves every time they went to feed, not one of them attempted to eat their bridge, but passed further on before commencing their meal. In former seasons any of these caterpillars that I observed spinning up, chose the shelter of a fence, or crevices in bark, or some such place to make their cocoons in, but this season I found them rolling up leaves and making their cocoons inside them, and in some cases I found two cocoons in the same leaf. I found them spun up in almost every kind of leaf, Linden, Oak, Maple, Butternut, Thorn, Sweet Briar, Asclepias, Fern, &c. On Asclepias and Fern they only rolled one edge of the leaf, and sometimes spun up on the leaf exposed without any covering. I also saw several spun between stalks of grass; indeed they selected some most extraordinary places, for a friend of mine showed me one in a bird's nest. The nest was built in a fir tree, and contained four eggs, over which the cocoon was spun, and attached firmly to the sides of the nest; it would not have been so strange if the nest had been on any of its food plants, and built low down, but this was on a fir tree, and a good height from the ground. I suppose it may be set down as one of the freaks of nature. I selected cocoons from leaves of various trees and plants, and all of them proved to be *Cistiocampa sylvatica*, Harris.—F. B. CAVELIER, in *Can. Entomologist*.

## The Colorado Potato Beetle Varying its Food.

A generally received opinion in regard to the Colorado Potato Beetle—*Doryphora 10-lineata* (Say),—is that its food is confined to plants of the family Solanaceae. I have found it this season (June 19, 1872) at Fort Austin, Michigan, sparingly feeding on grass, on which it had also deposited its eggs. Later in the season (July 20), at Fort Gratiot, Michigan, I encountered it in large numbers, in both the larva and perfect states, in the vicinity of potato fields (where it had committed terrible depredations) devouring the younger leaves and flower buds of the common thistle (*Cirsium lanceolatum* Scop.), which it was rapidly stripping, even to its thick stem, so that the entire top of the plant hung down almost severed. In the same neighborhood I also saw it on pigweed (*Amaranthus retrofractus* L.), knotweed (*Sisymbrium officinale* Scop.), the cultivated smartweed (*Polygonum hydropiper* L.), and the red currant, and tomato of the garden, as well as the common nightshade (*Solanum nigrum* L.), the last two its more legitimate food. But of the latter mentioned plants, with the exception of the nightshade, it ate only the young leaves, and of them very sparingly. The thistle it seemed particularly to relish. Could its attention be diverted from the potato to the Canada thistle, it would encounter an object worthy of its prowess; and the cures which have been heaped upon its striped back would be turned to blessings. But, I fear, little good can be hoped from the capacity, thus evinced, to diversify its food, and so accommodate itself to circumstances. This can only be regarded as another obstacle in the way of its extermination.

Since writing the above I have found the beetle feeding on the maple-leaved goosefoot (*Chenopodium hybridum* L.), lamb's quarters (*C. album* L.) and thoroughwort (*Eupatorium perfoliatum* L.), and August 8, 1872, I saw it in the larva and perfect state voraciously eating the black hound (*Physalis niger* L.), on which was also to be seen an abundance of the eggs.—HENRY GRILLIN, Detroit, Michigan, September, 1872, in *American Naturalist*.

## Agricultural Ants.

Mr. Moggridge has observed at Menton, France, two species of ants (*Aphaenogaster*) carrying into their nests, during the winter months, the seeds of certain late fruiting plants. He has traced their burrows to a spherical chamber filled with the seed of a grass, which he had seen the ants in the act of transporting. "Outside the chamber, there was generally a heap of the husks of the various seeds, and sometimes one of those husks would fill a quart measure. These husks had had their farinaceous contents extracted through a hole in one side. He purposely strewed near the nests large quantities of millet and hemp seeds. After the lapse of a fortnight, many of these seeds, previously conveyed into nests, had been brought out again, they having evidently commenced to germinate, and he then found that the radicle was grown off from each seed, so as to prevent farther growth, and this being effected, the seeds were carried back again. The cotyledons of germinated seeds were removed from the nest."—*Trans. Entomological Society, of London*.

**WALKING STICK OR SPINSTER**—This insect belongs to the *Phasmoda*, commonly called spinners or walking sticks and are found in large numbers of places to which they bear a strong resemblance, as their bodies are very long and slender, and as they generally lack wings. Some of the species (though they are not native to this country) imitate leaves so closely by the shape and venation of the wings, that the resemblance is striking. The wings are large and broad and the legs also have laminae capacious.

A dragon fly balanced on its wings at the side of a car speeding its way over the rails at the rate of forty miles an hour, appears to be almost motionless. But to keep up with the car, its wings must vibrate many thousand times a second. The eye cannot detect their up and down action, so exceedingly rapid are the contractions and relaxations of the muscles acting upon them. All at once they dart off at a right angle so quickly that the retina cannot have an impression remaining long enough to trace their course. Therefore, those same muscles, too small to be seen but by powerful microscopic assistance, must be urged to still more rapid action. Such intense activity far exceeds the vibration of musical chords, and, therefore, exceedingly perplexes entomologists, because the nervous system of insects is so extremely minute. The question is: How much power is generated for keeping a dragon-fly's wings in unintermitted motion for many hours in succession without apparent fatigue?—*Scientific American*.

## Miscellaneous.

## Peruvian Guano Deposits.

The following, from the Peruvian Minister, relates to the important question of the existing guano deposits in that Republic:—

"Peruvian Legation, London, Oct. 25, 1873.

"Sir,—By the last mail from Peru, this Legation has received the following official list of the guano deposits of that Republic. Up to the present date the only deposits which have been measured are those on the 'Islas de Lobos' and immediately surrounding islands, the Macabi and Guanape Islands, and those of the 'Bahia del Cerro,' surveyed by Mr. Davis in 1852. The remainder are now being measured.

"It should be borne in mind that, as in the case of the Chincha Islands, which were estimated by Mr. Elias in 1853 to contain eight years' consumption, whereas in reality they have lasted 10 years, so the Macabi and Guanape Islands, which Mr. Davis calculated to contain 2,248,000 tons, will undoubtedly produce very much more, because since 1870, according to official accounts, the exportation from these deposits has been about 1,443,213 tons—that is, more than half the amount of Mr. Davis's estimate—and no one will venture to assert that these deposits have been reduced by anything like one half. On the contrary, there is every prospect of their producing double the number of tons they were supposed to contain. This is easily explained by the difficulty of making anything approaching to an exact measurement or calculation of the deposits of guano, which lie on uneven surfaces, and under materially different conditions in various localities.

"Few persons are aware of these circumstances, and many ignore the existence of numerous other deposits which have not as yet been measured, but all of which are of more or less importance, and, consequently, I trust you will kindly insert these few remarks for their information.—I am, Sir, your obedient servant.

"P. Galvez, Minister for Peru."

## LIST OF THE GUANO DEPOSITS OF PERU.

Quebrada del Loa.—Coatings of guano exist on a dark hill.

Bahia de Chipana.—Rounding the point of Chipana, there exists a fair deposit of guano.

Punta de Huanillo.—About six miles and a half to the north there is an abundant deposit of guano.

Punta y Bahia Chomache.—Some patches of guano are found here. It is an inhabited place.

Islotes de los Pajeros.—Coatings of white guano. These islands are much resorted to by birds and seals.

Punta de Lobos y Blanca.—A great quantity of guano exists here, and its quality is very similar to the Chincha guano.

Cochada de Pica.—Coatings of guano in various places.

Abellon de Pica.—Great quantities of guano, notwithstanding all that has been taken for the agriculture of the country.

Cajeta de Pabellon.—A place well situated for extracting guano.

Punta de Patachi.—Great patches of guano in various places.

Islotes y Cajetas de Patillos.—A thin coating of guano.

Island de lo Chiquinaba.—Throughout the whole of this place there exists guano deposits just like those of the "Punta de Lobos," covered with a sort of cherty sand.

Islotes Cololue.—Thin coatings of guano.

Cajeta de Mejillones.—On the hill as well as on the islands thin coatings of guano are found.

Cajeta de Lobos.—Thin coatings of guano.

La Capilla.—Whitish patches and coatings which manifest the existence of guano.

Morro de Arica.—Thin coatings of white guano.

Islote de Jesus.—Thin coatings of white guano.

Punta de Pescadores.—On the surface there are some patches of guano.

Punta de Lico.—Patches of guano on the surface.

Punta de Lobos.—Slight patches of guano.

Punta de San Nicolas.—Thin coatings of guano.

Punta de Dona Maria.—Thin coats of guano.

Isla de las Vicjas.—A great quantity of guano.

Isote Zarate.—Coatings of guano in some places.

Isla de San Gallan.—Patches of guano in various places.

Bahia de la Independencia.—One of the largest guano deposits. Up to this date it has not been touched, but is calculated to contain a great many tons.