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## [CLISIOCAMPA AMERICANA.]

WE doubt whether there is an observing farmer in the Province who has not some acquaintance with this very troublesome caterpillar. Indeed, so common is it, and so generally spread over the country that it is known by the name of The Caterpillar. Like most other insects, it is oxceedingly abundant in a given locality for a few seasons, and then nearly disappears for a while, to return again in due time in great numbers. This year, for instance, they are very numerous in the county of Lincoln; their cobweb tents in neglected orchards are set up all over the trees, and the leafless branches give them the appearance of winter. Before the apple tree was planted in Canada, these caterpillars fed on the leaves of the wild cherry, and the planting of apple trees has just enlarged their feeding grounds. They make their appearance in May, coming out from the eggs in warm rainy weather. These eggs can easily be found before the leaves are expanded, fastened together in a broad band around some twig usually at a little distance from the end. Above we give an engraving showing the usual form and position of this belt of eggs. (Fig. 1.) It contains on an average some three hundred eggs, which are small cylindrical bodies set up on end, mos' of them perpendicular to the twig. The shell or covering of the egg is very tough, very like the best leather. These eggs are all covered with a thick gummy substance, which serves to protect the eggs from exposure, and to furnish food for the worms when they are first hatched. The moisture in damp or rainy weather has the effect to soften but not dissolve this gummy substance, so that the little worms on first coming forth are enabled to make their way through it, and for the first few days to feed upon it until they gain strength to go in search of the opening leaves.

At this time they are less than the tenth of an inch long, black and thinly covered with fino hairs. After having devoured the gummy covering of the eggs, they start off down the limb until they come to a fork in the branch,-there they stop and begin the



FIGURE 3.

FIOTRE 3.

formation of their tent. This is made of very fine silken threads, and is at first very light, but by continued additions from day to day, becomes in a short time sufficiently substantial to protect them from the weather. The caterpillars cast their skins several times, and at each casting or moult some change is noticeable in their size and appearance. When Field.

about half-an-inch long they are ornamented with a blue band running along the back, and a brighter blue line along each side. When full grown they are about two inches long, the head is black, and a pale line runs along the centre of the back bordered on each side by a band of irregular yellowish-brown lines upon a black ground, and below this on each side is a row of twelve irregular black spots upon a light blue ground broken by innumerable fine lines of black. The underside and the legs are black. It is covered with fine long yellowish brown hairs, most numerous along the sides just above the legs. When they are about to spin their cocoons they cease to livo together, desert their tent, and wander about feeding upon whatever they find palatable until they solect some secure retreat, where they spin their cocoons. Fig. 2 represents the full-grown caterpillar, and Fig. 3 the cocoon when completed. The cocoons are of a long oval form, light yellow colour, and the meshes filled with a fine yellowish powder resembling sulphur. Within this cocoon the caterpillar casts its skin and takes on the chrysalis form. Fig. 4 is a representation of the pupa or chrysalis. In about three weeks the moth breaks from the chrysalis and forces its way out through one end of the cocoon, forming a round opening in it by its passage. The moth is very plain, being of a brown drab colour, marked with two pale stripes running obliquely across the fore wings. The size and general appearance of the moths are shown in Figs. 5 and 6. Fig. 5 represents the male insect, Fig. 6 the female. They are most numerous during the first ten days in July, and in three or four days after they come forth, the females proceed to deposit their eggs upon the little twigs in in the manner shown in Fig. 1.

The best methods of destroying this caterpillar are first to search for the eggs after the leaves have fallen



and before the worms have left them in the spring, and cut them off and burn them, and second, to destroy the worms when in their tents. The carlier in the season that the work of destroying the worms in their nests is undertaken the more likely to be efficacious, for they are then small and more readily destroyed. It is not sufficient to tear out the nest and throw it on the ground, for the caterpillars will find their way back ; the only useful method is to crush every one of them.

We take this opportunity to acknowledge the reccipt of a letter on the Tent Caterpillar from Mr. J. H. Rowe, of King, C. W., for which we are much obliged to him, but as this article covers the whole ground of his communication, it will hardly be advisable to insert it. We shall be happy to hear from him again.

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A TRAP TO CATCH CATERFILLARS .- I often see in The Field requests to be informed how to rid fruittrees, &c., of the caterpillars which so infest such trees; and this fact has led me to forward my experience in such matters, and it is most simple and satisfactory, as will be shown upon the first trial. I get a quantity of old pieces of white (no other will answer equally well) linen, any length, and about two inches wide; these pieces I tie on the trees or bushes, in liberal numbers, in all parts of the trees or bushes, setting my traps (as I call them) in the evening, taking care to pay them an early visit on the following morning, when the strips will be found covered with the caterpillars, which, as a matter of course, I at once dispatch by killing in the most merciful manner I can devise.-S. P. SAVILLE, in The



The Apiary.

## Propolis or Bee Glue.

To the Editor of The CANADA FARMER :

Sin,-I am often asked the question, what is bee glue, and how made? I will, therefore, for the benefit of those who may be desirous to know, answer the question through your valuable paper. I know that I trample upon disputed ground in doing so. Miner, in his "Bee Keeper's Manual," says that Huber conin his "Bee Keeper's Manual," says that Huber con-sidered propolis to be a genuine production of nature and not manufactured; but he does not think Huber's opinion sots the question at rest, for he adds:-"Neither he (Huber) nor any other person, it is pro-bable, ever saw the bees in the act of gathering this substance, nor even when gathered by them on their return to their hives to deposit their burden." Again, he says :-- 'It is probable that propolis is an elabo-rated substance. ' And here the question must forever rest.' 'The bees produce it when it is required, but when they obtain it, or how they make it, must be a secret not for man to unfold. Huber's ssertion to the contrary notwithstanding.

Now, that Huber is correct in saving that it is a genuine production of nature," I very well know, for I have not only seen them bringing it from the field, but have caught them and removed it from their legs, and both by taste and smell have been able to say what it was. It is nothing more nor less than gun or balsam which exudes from certain trees. In this section of country, at this time of the year, it is all pine turpentine, evaporated to a gunny consis-tence. In the spring, it is often a balsam obtained from balm of Gilead buds, and may easily be known by the smell. In fact, it is any gun or balsam which they are able to find. It is gathered on the legs in the same way as they gather pollen, though it does not lie so flat, but is round in form like the head of a pin. The bee that gathers it does not apply it, but passes through the crowd, and those bees occupied in glueing seize it and apply it to the spot desired. This may be seen by any bee-keeper at this time of the year, esp. cially in colonies that are strong. Whoever will take the trouble to examine may satisfy himself that there is no mystery about bee glueing-that propolis is not an "claborated substance," but a genuine natural production. I trust the day is not far distant when the mystery and superstition con-nected with bee-keeping will pass away. Brooklin, C. W. J. H. THOMAS.

## Analysis of the Excreta of Bees.

VARIOUS opinions are held respecting the composition of the excrement of bees. While most persons regard the contents of the rectum as composed of the indigestible remains of pollen, Dr. Alefield recently declared them to be uric acid. An analysis of the excreta has shown the following ingredients :--

1. Remains of pollen. I holied the excrement in caustic potash lye, slightly diluted. After filtering, I washed the residuum in hot dilute muriatic acid. What was left after again filtering, could, from its insolubility, be only the remains of pollen. It ap-peared under the microscope like an indistinctly granular mass granular mass.

2. Uric acid. I immersed the excrement in concentrated sulphuric acid, in which uric acid remains unde-composed. After carefully decanting the liquid from the resulting carbonaceous mass, I added water; and then washed the precipitated matter in water. I now added one drop of liquor ammoniaci and one drop of muriatic acid. On heating, the mass assumed a purplish hue-the characteristic action of aric acid.

3. Rippuric acid. I boiled some excrement in caus tic potash iye. After filtering, I added dilute muriatic acid, and obtained a precipitate which proved to be composed of uric and hippuric acid. According to an approximate estimate, the excreta of bees consists of about one-third uric and hippuric acid, and the rest of indigestible portions of pollen.