THE FARMER'S ADVOCATE.

THE CECROPIA EMPEROR MOTH (Platysamia

Cecropia).

ENTOMOLOGY.

Injurious Insects--No. 11.

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WINTER WORK FOR THE HORTICULTURIST.

There is no time of the year, not even in the winter, when the thermometer is fluctuating about the zero point, that the careful fruit grower can afford to call a truce with his insect enemies. Indeed this is the time when he must prosecute his warfare energetically, because many of them are then at his mercy. The truth of the assertion frequently made by entomologists concerning the importance of learning the life-histories of insect pests is now proved, for those which pass the winter in some form upon the trees are now easily detected, and steps can be taken for their eradication. Insects pass the winter in all stages of their development, either as (1) an egg, (2) a larva or caterpillar, (3) a chrysalis, or (4) the perfect state. They hibernate in all kinds of positions, on branches of the food plant, in crevices of bark, beneath moss or leaves, or beneath the surface of the ground. As a general rule, but not invariably, the individuals of any one kind of insect pass the winter in the same manner-for instance, the caterpillars of most of the Owlet Moths, better known as "cutworms," hatch late in summer, and pass the winter half grown ; others, however, do not hatch until the following spring, or the species hibernate as chrysalis in the earth. I purpose, on the present occasion, to draw attention to some of those injurious insects which may be found now in the orchard, and for which it will well repay the fruit grower to be on the look-out.



THF APPLE-LEAF BUCCULATRIX (Bucculatrix pomifoliella). Fig. 1.

Fig. 1c shows an enlarged figure of a beautiful little moth, the caterpillars of which occasionally occur in sufficient numbers to injure apple trees seriously. There are two broods in the year, the second of which passes the winter inside white ribbed cocoons upon the twigs (Fig, 1a, natural size; b, enlarged). These are reported in large numbers from Catharines this winter. The best remedy is, probably, to take note of the trees which are badly infested during the winter, and then destroy the caterpillars by spraying the trees thoroughly, just after the flowers have fallen in spring, with Paris green, 1 pound in 200 gallons of water. From small trees the cocoons could be removed in winter with a stiff brush.

time, a large, elongated, irregular cocoon, three inches or more in length, may frequently be found firmly attached to a twig of an apple or cherry tree. This is the winter home of 'our

In going through an

orchard in the winter

largest and most conspicuous Canadian moth. It will be well worth the while of anyone who may find one of these cocoons to take it into the house to see the magnificent creature which will emerge from it about March or April. The caterpillar is very large, nearly four inches, and naturally consumes a large amount of foliage every day; but it seldom oc curs in sufficient numbers to be considered very injurious. Besides the apple, cherry and plum it feeds upon the pear, the maple, the willow, the elm, the butternut, the hickory, and several other trees. Gathering the cocoons in winter or handpicking the caterpillars in summer are usually efficient means of keep-ing this insect in check.

Cocoon of Emperor Moth.

DAIRY.

Ontario Creameries' Association.

The eighth annual meeting of the Ontario reameries' Association, which convened in the town hall, Harriston, Ont., on the 11th January, was one of the most successful meetings ever held by this body. The members turned out in larger numbers than usual, and so much interest was shown in the proceedings that the meeting was extended to the close of the third day.

The proceedings were opened by President Derbyshire, who delivered his annual address and reviewed the work of the past year, which has been very satisfactory. He said the instructor had been very successful among the creameries, giving practical instruction, and addressing patrons wherever they could be got together. Prof. Robertson and Hon. John Dryden had done everything possible to assist them. By thus all working together they had nearly doubled the number of creameries during the year, and made the largest quantity of fancy outter ever manufactured in Ontario in one year. He then referred to some of the most important dairying questions, such as keeping better cows and making them more comfortable, the production of cheap food, and paying for milk according to value as shown by the Babcock test; some are paying ac-cording to butter fat now. All should follow their example. He stated that every failure, either in butter or cheese factories, could be traced directly to want of dairy knowledge, and said he was sure that all would be pleased to learn that a dairy school had been established in connection with the Agricultural College, and he believed every maker should take advantage of this course. Extension of dairy knowledge will lead to a longer season, so that instead of working only four months we will by-andbye carry on operations all through the year. Mr. John Sprague, Ameliasburg, read'a paper on • Economy in the Production of Milk." He pointed out that there was two kinds of economy-good economy and poor economy. The man who cannot afford to take a dairy paper, and feeds his cows on straw, is practising poor economy, as is the dairy farmer who does his work by guess. In the line of good economy the two great aims are to produce the largest amount of good milk at the smallest cost, and at a season when it is worth the most. To bring about this result the silo will play a most important part.

practically the same as if the test had been taken every day and then averaged. Here no second sampling was necessary. But in this case, unless great care was exercised, errors would creep in through the use of such a small pipette. The second series of experiments told of the use of potassium bichromate as a preservative. He had first tested to see if the chemical had any injurious effect upon the fat, but found that a sample of milk so treated gave the same per cent. of butter fat after a period of five weeks. Three or four grains of the chemical are put into the testing vessel, and by means of a tube a proportional sample of the patron's milk is put into this vessel each morning. At the end of the week it would be found quite fluid and easily tested by the Babcock machine, thus reducing the work and giving equally accurate results.

In the discussion which followed, ex-Governor Hoard said that he used the former system with this modification, that his pipettes were one-third he regular size, and that he tested twice a week.

Mr. Walton, of Hamilton, read a paper on "How to Fit up a Creamery." He had more enquiries this year about the proper fitting up of a creamery than ever before, and urged the appointment of a dairy engineer.

At the close of the paper he moved, seconded by Mr. Derbyshire, that this meeting recommend the Board to employ a dairy engineer, who should be at the call of any one requiring his services, which were to be given without expense to the person needing them.

Mr. Graham, of Belleville, gave an address on the "Extension of the Creamery Business in Ontario." The reason he gave why the exportation of butter had not increased more rapidly in the last twenty years was that the system was wrong, but that since the making of butter in creameries had come into vogue both the quality and the quantity of butter had steadily increased. There are great possibilities ahead for the butter trade. We now supply nearly one-half (three-sevenths) of the cheese shipped to England, but only one-eightieth of her but-We should try to displace a share of the butter ter. imported from other countries with Canadian but-ter; but to get a hold on the English market we must send a constant supply of good butter. The only way to obtain this is by the aid of the silo and winter dairying. He showed that the farmers are losing by sending their butter to the store rather than their milk to the creamery, and at the same time the country was losing her reputation for butter. The country storekeeper would like to tell his customers when their butter was not up to standard, but he dared not for fear of losing custom, so he pooled all the butter, good, bad and indifferent The President said that in Brockville the store-

keepers did not handle butter. It was all bought in the market on its merits for cash.

Hon. John Dryden gave a synopsis of the work being done by the Ontario government for the advancement of dairying. The creameries and dairy associations could not have accomplished nearly the amount of good they have, in establishing creameries and cheese factories, increasing the ex-ports of dairy produce and spreading dairy knowledge, without the financial backing of the Ontario government. The printing of the reports and bulletins was doing much to enlighten farmers in dairy science. The travelling dairy was accom-plishing the same object. Some of the creamery men had been afraid that it would injure their interests, but the results show that the effect has been the opposite, as the inspector's report shows. The results from the establishment of the dairy course at the Ontario Agricultural College were very gratifying. Two months before they were ready to start they had the chairs all filled and had to refuse over thirty applications. He then stated the amount of money which had been spent in one way or another in the dairy interests, and was sure that it was all well spent, but at the same time he did not believe in doing too much. The function o the government was to educate the people and then to let the people do the rest. Ex-Governor Hoard gave an interesting address on Practical Creamery Work. He stated that a few years ago the cows in his state gave a smaller amount of milk with a lower per cent. of fat than Canadian cows, but now they are far ahead. This he attributed to the educational influence of the Babcock test, and creameries and dairymen's conventions, which have led to the discarding of poor ows and the breeding and selecting of a better class, and looking more closely after the comfort of those kept. He showed that decrease in butterfat may be caused by exposure to cold, drinking cold water, improper feed and housing, cruelty and ill-treatment. He had verified these impressions by ctual tests with Babcock.

FEBRUARY 1, 1893

THE EYE-SPOTTED BUD-MOTH (Metocera ocellana).

This troublesome enemy of the apple grower may now be found in the caterpillar state upon twigs in the orchard. The eggs are laid about midsummer, and by October the caterpillars are half-grown. They then leave the foliage, and spin silken shelters in any small depressions on the twigs. Here they remain until the following spring, when they emerge and commit great havoc by boring into the bursting buds. Spraying the trees as soon as the leaf-buds burst, and before the blossoms open, with Paris green, 1 pound to 100 gallons of water, or with Kerosene Emulsion, has given good results.

THE APPLE-TREE TENT-CATERPILLAR (Clisiocampa Americana).

A very successful method of clearing orchards of this pest is to collect the eggmasses (Fig. 2) during the winter. These masses are easily recognized after a little practice, and as they are nearly always placed upon the small twigs at the ends of

the work of looking for them is much simplified. The egg clusters are laid in the month Fig. 2. of July by

an active brown moth (Fig. 3), and each cluster contains from 200 to 300 eggs. The caterpillars when full grown are nearly two inches in length, and when undisturbed the brood of a single cluster. of eggs is able to entirely strip a tree of considerable size.

In response to a general demand Mr. Sprague supplemented his paper with a talk on the silo, which he claimed would be the means of producing a larger quantity of milk at a less price, and also a superior quality of butter.

Prof. Shutt, Chemist Dominion Experimental Farm, gave an address upon "Butter Fat in Milk. In it he gave the results of experiments conducted at the Experimental Farm. These were undertaken with the object of finding a way to lessen the work now necessary in making daily tests of each patron's milk. In the first series he had used a special pipette one-sixth the usual size, and by this means samples of each patron's milk were put directly into the test bottle. At the end of the week these test bottles would contain the correct amount, and though perhaps thick and sour this would not inter-

Prof. Dean gave a report of experiments conducted at the Ontario Agricultural College for 1892, n which he stated that ensilage, hay and straw produce a soft butter, while the addition of neal, and especially cottonseed meal, had a ten-dency to make the butter firmer.

Prof. Saunders, in the absence of Prof. Robertson, gave a report of their dairy work at Ottawa. and at the other experimental farms, and the progress of the experimental creameries

Prof. Shutt, in his address on the silo, went contrary to some of the opinions expressed by other members. He said the changes brought about by fermentation in the silo were caused by germs which fed upon the corn plant, and in this way produce fere with the action of the acid, and the result was heat. Air is necessary for these germs to live. We

