These observations were made in the field at a time when the hoppers were disturbed. From this observation it would seem that while they always walk in the first, second, third and fourth nymphal stages, they may either walk or hop in the fifth.

Evening Session, Saturday, December 28, 1907

The final session of the meeting was held in the parlors of the Windsor-Clifton Hotel at 8 p. m.

The following papers were presented, the discussion being postponed until the close of the last paper:

NOTES ON SOME INSECTS OF THE SEASON

By HERBERT OSBORN, *Columbus, Ohio.*

While there has been no widespread devastation from insects during the past season in Ohio, there have been several minor outbreaks covering certain localities, and some of these it seems worth while to put on record. Comparison of these with occurrences of these species or of other forms during other seasons has a distinct interest.

In the northern part of the state there was a quite noticeable amount of injury from the bollworm, *Heliothis obsoleta*. This was particularly serious in gardens and on the truck farms in the vicinity of Sandusky, and in addition to the ordinary attacks upon corn and tomatoes, attacks were made upon nearly all kinds of garden crops. Very noticeable injury occurred upon beans, cabbages and various other crops that have not been so commonly attacked.

In the vicinity of Columbus there was considerable damage by the walnut caterpillar, *Datana angusii*, many trees in Columbus and vicinity being stripped completely bare of foliage, and clusters of *Datana* occurring, sometimes representing a half dozen or more colonies upon a single tree.

Another species that was unusually injurious in the central part of the state and I think over a considerable area is the white-marked tussock moth, *Hemerocampa leucostigma*. These occurred in immense numbers upon maple trees and also on other kinds of shade trees, and the egg clusters on the cocoons have been a very conspicuous object during autumn and the present winter.

ENTOMOLOGICAL NOTES FROM MARYLAND

By G. P. WELDEN, *College Park, Md.*

(Read by T. B. SYMONS.)

Scale insects, though still holding a place of importance in the state, are no longer dreaded, as formerly. A large percentage of the fruit

growers are successfully controlling the ravages of these pests, and it is only a question of time until a few negligent people in isolated localities will hear of the good work being accomplished and will fall into line with the host of successful combatants. Time will bring about a wide enough dissemination of knowledge, so that scale will be practically eliminated from all orchards where it occurs through the use of a good spraying mixture, properly applied.

Aspidiotus perniciosus is without doubt the most generally distributed scale pest occurring in the state. Others that deserve more than passing mention are *Eulecanium nigrofasciatum*, *Chionaspis furfura*, *Lepidosaphes ulmi* and *Chrysomphalus tenebricosus*.

Chrysomphalus tenebricosus. The past season was especially favorable to the increase of this species, and in many parts of the state the native maple trees suffered severely from its attack. The natural parasites which usually occur in large enough numbers to keep it in check seemed in many places to be exceedingly scarce, which fact no doubt accounts for the severe damage done by the scale. From the fact that no trees in badly infested localities were found to have been killed outright, it is probable that the multiplicity of the pest the past season was unusual. Many trees were literally coated with the scale and cannot possibly survive another season's attack, should it continue to breed in such large numbers, unless the owners of trees come to their aid with the lime and sulphur wash or some other good insecticide. Though no trees were found killed by the pest, the numerous dead branches told of its ravages and foretold the destruction of the trees.

The distribution of the pest seems to be quite general throughout the state. It was found on red maples (*Acer rubrum*) in Cumberland but not in destructive numbers. The worst infested section lies east of the bay, and of the counties visited, Talbott, Worcester and Somerset have the greatest degree of infestation.

No insecticides have been tested for its control, but from the nature of the scale and its attack we would feel safe in recommending the lime and sulphur wash as a good remedy.

Lepidosaphes ulmi. This pest and *C. tenebricosus* are the two most important enemies of maple trees in Maryland. The oyster shell scale has been so frequent a subject for discussion that we do not wish to go into any lengthy history of its occurrence and ravages within the state. We do wish, however, to mention one thing that came to our notice upon investigating its injury in different parts of the state the past summer, and that is the seeming immunity of Norway maples to its attack. Only in one case did we find *Lepidosaphes ulmi* on Norway

maples and that was on a few small trees in a nursery row. This immunity, or probably we might better say resistance, was particularly noticeable in Cumberland, where the scale was exceedingly bad on poplars and native maples. Apparently none of them were absolutely free from it, yet Norway maples, which are very plentiful in the city and growing alongside of them, were examined in large numbers, and not in a single case did we find one infested.

Further investigations might prove the fallacy of the above statements, but we think it probable that there is a resistance here at least as great as that of the Kieffer pear to *Aspidiotus perniciosus*.

Monocesta coryli. Among the insects of less common occurrence which became a pest in at least one locality in the state the past season, may be mentioned *Monocesta coryli*, the greater elm leaf beetle. This beetle was found in large numbers last July in the vicinity of Keedysville. Its attack seemed to be confined to the native wild elms, which it was defoliating so badly that it would no doubt be a serious pest, should it continue to appear in future seasons as it did the past.

We were unable to find any literature indicating its presence in the state prior to the past season. One specimen in the department collection, however, bears a Sharpsburg label, dated July 21, '98. No notes could be found which would indicate that it had occurred there in large numbers at that time. As the present year they were found within a couple of miles of Sharpsburg, it seems reasonable to believe that they have been in the vicinity for a number of years, but probably in less numbers. In the Mississippi Station report for 1895, Mr. H. E. Weed mentions its presence in that state and suggests for it the name of Greater Elm Leaf Beetle to distinguish it from the more common smaller species of elm leaf beetle, *Galerucella luteola*.

Owing to the fact that *Monocesta coryli* is of uncommon occurrence and is not a familiar insect to many workers in entomology, we thought best to publish herewith a short general description of same.

The full-grown adult insect is about one half inch long from the anterior margin of head to the posterior margin of elytra. Head, legs and abdomen are a light yellow color. Anterior one third of the elytra and a trifle more than the posterior one third, are of a deep green color shading on blue, with a beautiful metallic luster. A wide band of yellow crosses the elytra between the green markings. Elytra are long, projecting well back of the tip of the abdomen, also well below the sides. There is much in the general appearance of this insect to indicate that it is a tropical species which has migrated north, and has become acclimated in this latitude.

No remedies were tried for its control, neither were we able to

learn anything of its life history, as a number placed in a breeding cage failed to breed in confinement.

Monoptilota nubilella. On July 16 a number of lima bean plants, upon the stems of which were numerous galls, were sent to the department by Mr. Oscar L. Moore of Salisbury. They varied in length from $\frac{1}{2}$ inch to $1\frac{1}{2}$ inches. An opening had been made by the larvæ in one end. Upon cutting into one of these galls, a beautiful bluish green larva was found to be responsible for their formation and the subsequent injury to the plants. The larva is a striking one in appearance, because of its uncommon metallic blue reflections. Several of the adults emerged from the galls and were identified as *Monoptilota nubilella*. A detailed account of this insect by Doctor Chittenden of the Bureau of Entomology may be found in Bulletin 23, new series, U. S. Department of Agriculture.

This pest was first found in the state in 1899 and has no doubt been responsible for more or less injury to lima bean plants since that time. No serious complaints of its injury came to the office, but should it become plentiful, it would no doubt be a hard pest to combat. The only means of control suggesting itself would be the removal of the galls from infested plants.

Thyridopteryx ephemeraeformis. This species of bag worm was responsible for a large amount of injury to fruit and shade trees the past season. Numerous inquiries as to its name and habits were received from widely separated localities in the state, showing that its occurrence was general. In many different places the writer saw evergreen trees, mostly arbor vitae in hedges, killed by it. Its attack was by no means confined to evergreens, however, for it was found on locust, blackberry, rose, maple, apple, plum and cherry. Young fruit trees seemed especially subject to its attack and trees in several young orchards visited were badly stripped.

Other pests of the season which were responsible for more or less damage but deserve no more than passing mention were: Army worm (*Heliothrips unipuncta*), old-fashioned potato beetle (*Epicauta vittata*), bean leaf beetle (*Ceratoma trifurcata*), striped cucumber beetle (*Diabrotica vittata*), stalk borer (*Hydroecia nitela*), red humped apple worm (*Schizura concinna*), yellow-necked caterpillar (*Datana ministra*), and corn bill bugs (*Sphenophorus* sp.).

ENTOMOLOGICAL NOTES FOR 1907

By E. P. FELT, Albany, N. Y.

The climatic conditions of 1907 departed widely from those of normal years, and as a result the development of animal and plant life

Welden, G. P. 1908. "Entomological notes from Maryland." *Journal of economic entomology* 1(2), 145–148. <https://doi.org/10.1093/jee/1.2.145a>.

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