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Life History and Embryology of *Monostegia (Selandria) ignotia* (Nor)

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structure of these glands in *Pemphigus tessellata* Fitch as an illustration of the unicellular form, (apparently the only form hitherto recognized), and in *Schizoneura crataegi* Oestlund, as illustrating a complex gland. In the latter the waxy secretion is forced through chitinous rims to cup like glands, the glands arranged in clusters four to six or seven in a cluster and each composed of numerous cells.

ADDITIONS TO THE CATALOGUE OF IOWA HEMIPTERA.

BY PROF. HERBERT OSBORN,

The additions to my list of two years ago presented in this contribution number thirty and I have a few species undetermined that can probably be included by the time the full list is published.

LIFE HISTORY AND EMBRYOLOGY OF MONOSTEGIA (SELANDRIA) IGNOTIA (NOR).

BY PROF. FREDERICK W. MALLY, M. S.

(Abstract.)

This paper was a brief extract, giving the more important results of a study of the above named species as effecting the strawberry, and included in a Thesis prepared for the degree of Master of Science at the Iowa Agricultural College, Ames, Iowa, and is published in *Insect Life*, Vol. II.

The adults of this new strawberry pest appear about the 1st of April and begin egg deposition soon after. The period of greatest deposition being about the middle of April. In two weeks the eggs hatch. Larvæ are found from the middle of April, being most abundant during the first half of May, and by the 1st of June all the larvæ have matured and entered the earth.

The larvæ of *Monostegia ignota* (*Nor.*), are distinguished from those of *Harpiphorus maculatus* by having a uniform

pale brown head, while the latter have one black spot back of each eye and one on the vertex. *M. ignota* is probably single brooded, as none of the larvæ which entered the earth June 1st have pupated, but up to date, September 2d., have only contracted to one-half the length.

Monostegia ignota appears and again disappears about a month earlier than the old pest *H. maculatus* (Nor.). The young larvæ, therefore, are plenty before the strawberry plants begin blooming and hence can be easily exterminated by the application of any of the arsenical poisons without the danger of poisoning the berries. These poisons can be effectively applied about the latter part of April or first of May.

THE CRYSTALLINE ROCKS OF MISSOURI.¹

BY PROF. ERASMUS HAWORTH, PH. D.

(Abstract.)

In the May and June numbers *American Geologist* the writer published a preliminary description and classification of the crystalline rocks of Missouri. Since that time considerable more field work has been done, and much new material gathered which is now being examined in the laboratory. Thus far nothing has been discovered which would originate any new ideas regarding the geology or petrography of the district under discussion, but a great deal of evidence has been obtained confirming views advanced in the publication above mentioned.

The relative ages of the crystalline and sedimentary rocks may now be considered established. The sedimentary rocks are younger than the underlying granites and porphyries. This has been stated by every geologist who has written on the subject, but the evidence, so far as made known, was simply that of super-position. This evidently is not conclusive;

1. Read by consent of the Director of the U. S. Geological Survey.