

# ENTOMOLOGICAL NEWS

AND

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### AUTUMN COLLECTING OF LEPIDOPTERA.

By RICHARD E. KUNZE, M.D., New York.

A sandy shore fringed by a belt of timber, the background of which skirted by undergrowth, shelters many forms of Lepidoptera. A few clearings near fishermen's huts and patches of cultivated ground produced a varied flora. Such is a part of Hudson County, N. J., facing Newark Bay on one side and on the other a line of villages, opposite Staten Island, N. Y. The roads leading to the beach are covered by a yellow sand, attractive only to some insects because of protection it affords to certain forms. A sandy bluff overlooking the bay was carpeted with a low, blue-flowering Aster (*A. multiflorus*), while other taller kinds and a Goldenrod (*Solidago ulmifolia*) grew in abundance on the clearings. Many butterflies were attracted to this sheltered, out-of-the-way locality, and not a few were uncommon.

It was September 25th, 1892, a bright, warm Sunday, when I, with an entomological scholar of mine, did some fine collecting in this locality. Of Heterocera we took a few *Catocalæ* of commoner species, and one of *resecta* from a hickory tree, some *Deiopeia bella*, one *Scepsis fulvicollis* and a few Noctuids I could

## DEPARTMENT OF ECONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc. D., New Brunswick, N. J.

**The Black Peach Aphis.**—In Bulletin No. 40 of the Cornell Experiment Station Mr. Slingerland has an article on the Black Peach Aphis, *Aphis persicæ-niger*, which has, it seems, made its appearance in destructive numbers in some sections of New York State. Nothing is added to our knowledge of the history of the insects, and under the head of remedies he makes the statement concerning the root inhabiting form that "There is on record no experiments in the destruction of this form." \* \* \* This is not strictly correct; in Bulletin No. 72 of the New Jersey Station I recommend kainit for the root form of this insect, and in Bulletin No. 75 I quote the positive testimony of Dr. E. F. Smith, who made the experiment, that tobacco dust had been tried with great success. In my report for 1890 I cite the testimony of growers as to the effects of applications of kainit on infested ground, and throughout my reports are notes on the same subject. If my memory serves me, Mr. Alwood, of the Virginia Station, has also stated at some meeting of economic entomologists that tobacco had been successfully used by him or in his State. Dr. E. F. Smith has, somewhere, published his experiments on the root forms of the peach louse in some detail, and Mr. Slingerland, however small his faith in the efficiency of the remedies, might at least have stated that claims have been made for them; leaving it open to the farmers to make experiments if they choose. Though I have made no experiments which have any claim to be called conclusive, yet the uniform success that has attended a liberal use of kainit in peach orchards infested by these root lice, leads me to feel safe in making positive recommendations. Thus far I have not found a case where the applications have failed. The trouble with the trees was not starvation in all cases, but entirely an aphid attack. \*

**Carnivorous and Herbivorous Insects.**—The food relations of some of our supposed predaceous insects have been carefully studied by Prof. S. A. Forbes, and some contributions have been made on the subject by Mr. F. M. Webster and others. Among the predaceous forms the Coccinellidæ have been shown to be by no means as universally carnivorous as was once supposed, but that vegetable matter, and particularly fungus spores formed a considerable proportion of their nourishment at some seasons of the year. *Coccinella 9-notata* is one of the most common of our "lady birds," and there is no question that, in both larval and adult stages, much, and sometimes all of its food is furnished by plant lice. Others as well as myself have actually observed them feeding voraciously on quite a number of species of aphids, so that this habit of the species is in no doubt. *Epilachne borealis*, on the contrary, is as universally known as an herbivore, which is gradually but steadily increasing in num-

bers and in destructives, in New Jersey at least. I was curious to know just what, if any, difference in mouth structures accompanied this divergence in habits, and dissected out the parts in the above-mentioned species, and with a somewhat unexpected result. While in the *Epilachne* I

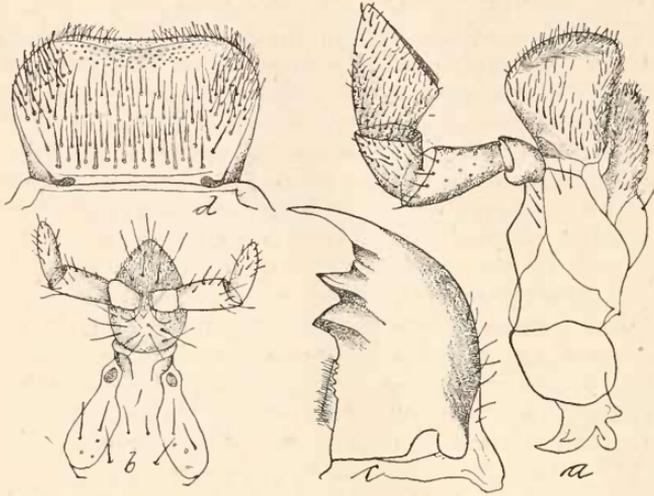


Fig. 1.

found a stout, chitinous mandible with a prominent acute apical and two smaller internal teeth, such as might well belong to a carnivore, I found in the *Coccinella* a mandible which I would as readily have referred to a

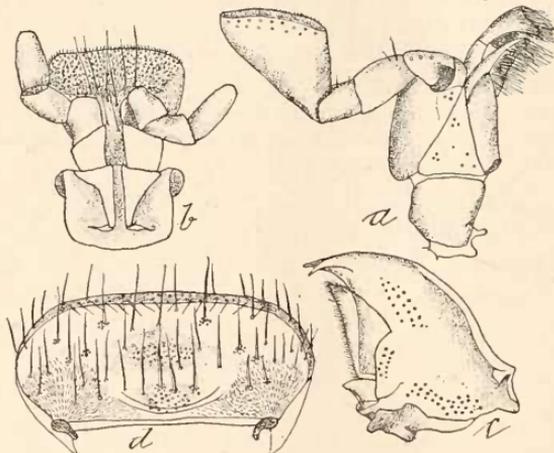


Fig. 2.

pollen or fruit feeder. The mandible is distinctly compound, with all the sclerites well marked, the apical tooth small and bifid. It will be noticed by comparing the figures herewith given that the differences are not confined to the mandibles, but extend to all of the mouth structures. The

maxillæ are quite radically different in the development and the texture of the parts, and in this respect the *Coccinella* more resembles other predaceous insects. The form and arrangement of the sclerites of the labium differ throughout, and show no family resemblance in any character that I have noted.

The labrum of *Coccinella* differs markedly in form from that of *Epilachne*, but yet more markedly in the sensitive structure beneath it—the epipharynx. A marked peculiarity in *Coccinella* is found in a central and basal series of sensory pits which are not furnished with tactile hairs. The latter are few in number, as compared with *Epilachne*, and are much less regularly arranged, but many, if not most of them, have around the base a number of supplemental pits, which are not furnished with perceptible processes of any kind. I have made no detailed comparisons between the parts, preferring to let the figures speak for themselves, but it gives an indication of differences remaining to be studied, and contradicts a generalization which I had been inclined to make, that compound mandibles would be rarely found in predaceous forms.

#### EXPLANATION TO BASE FIGURES.

Fig. 1.—Mouth-parts of *Epilachne borealis*: *a*, maxilla; *b*, labrum; *c*, mandible; *d*, labrum beneath—epipharynx. Original.

Fig. 2.—Mouth-parts of *Coccinella 9-notata*: *a*, maxilla; *b*, labrum; *c*, mandible; *d*, labrum beneath—epipharynx. Original.

**The Cattle Tick.**—Bulletin No. 24, of the Texas Station, on the above subject is an unusually interesting and valuable one. Dr. Cooper Curtice, its author, is well known as a veterinarian, and has devoted himself more especially to a study of the parasites of domesticated animals. The history of this tick is very completely given, and there is much information concerning the structure and physiology of the insect, while the author leaves yet some problems for others to solve. There is a consideration of the relation of the ticks to "Texas fever" in cattle, but Dr. Curtice is apparently not convinced that any real relation exists between them.

Dr. M. Francis treats of remedial measures, and finds several of the sheep dips preferable to the kerosene emulsion. He does not find that Mr. H. E. Weed's recommendation of sulphur is warranted by experience in Texas. The efficiency of the sheep dips as compared with the kerosene emulsion is somewhat surprising, and warrants more careful study of the composition of these dips.

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I GIVE a new locality for the *Lycæna sonorensis*, it being in the Yosemite on the trail leading to the foot of the Upper Yosemite Falls. I took several between the Columbia Rocks and Valley View Point during the month of May, 1892, and they were seen on the opposite side around Union Point on the trail leading to Glacier Point during the month of June, but they were so worn I took none of them.—J. B. LEMBERT, Yosemite, Cal.