

1879

## Entomology

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*January 1880.*

## ENTOMOLOGY.

BY R. J. MENDENHALL.

[EXPLANATION.—The manuscript of the inaugural address of President Winchell, delivered January, 1879, was unfortunately destroyed by fire, along with the manuscript and printed pages of the whole of the bulletin for 1878. After some delay the most of the other manuscripts have been reproduced, and are here combined with the bulletin for 1879. The paper of Mr. Mendenhall, read at the February meeting, was consumed with other manuscripts, in the fire that destroyed Brackett's Block. A few extracts from it appeared in the Minneapolis Tribune of February 5th, 1879, and to that the Bulletin is indebted for the following.]

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As an educator of the observing faculties, the memory and the deductive powers, as well as in the cultivation of a refined taste, no branch of natural history can advance greater claims and for these reasons alone it deserves a place in our schools by the side of its sister science of botany. There are, however, direct practical advantages to be gained from a more general diffusion of knowledge on this subject. Millions of dollars are annually lost, through the ravages of insects, not only by farmers and horticulturists—though these probably suffer most directly and heavily—but by manufacturers, merchants and private consumers. It is clear that the most vigorous efforts should be put forth to prevent this loss, and it is equally clear that the depredators cannot be fought to any advantage without some knowledge of their habits. The measures taken by most people for the extermination of troublesome insects are about as well adapted to secure their object as would be the rigging up of a man-of-war to effect the destruction of the foxes that nightly depredate in poultry yards.

Every insect passes through some stage in which it is more helpless than at other times. This is the stage at which it may be vanquished, and the one to which for practical purposes our observations must be directed. Investigations of this kind, together with determination, by actual experiment, of the best and most practicable remedies, constitute the principal business of the professional economic entomologist.

\* \* \* \* \*

The insect from which Minnesota has suffered most is, unquestionably, the Rocky Mountain Locust (*Caloptenus spretus*, Thomas.) This insect and its close allies in other parts of the world enjoy a "bad eminence" among the hexapod tribes, their advent, which can seldom be predicted and never prevented, creating more well-founded consternation in the mind of man than the appearance of any other insect foe. Few of the lower animals have figured, during late years, so largely in literature as our Western "hopper." Our daily papers have given its movements the place of honor in their news columns; our scientific periodicals have delighted to bring before the public all the facts in history. Conventions have been held in its honor, committees have sat upon it, lecturers have discoursed upon it, entomologists have quarreled over it, and more heartily than all, farmers have execrated it. It has been ditched, and bagged, and even oiled and *eaten!* And to crown all, the United States Entomological Commission have recently issued a volume of over seven hundred pages devoted to its history, habits, migrations and enemies, illustrated with portraits of the "hopper" in all stages, from the embryo in the egg to the fully fledged traveler, equipped for the return journey to his native highlands. In view of all this it will be seen that a detailed description of this important insect would be superfluous in this paper. Suffice it to say that the next incursion of "hoppers" (may it be long delayed) will find us better posted as to their habits, and better prepared to wage successful war upon them than before.

\* \* \* \* \*

Minnesota has never been seriously troubled with the chinch bug (*Micropus leucopterus*, Say.) a pest from which the grain-growers of more southern states have suffered incalculable loss. It is probable that the ordinary severity of our winters alone keeps it in check. The unusual mildness of last winter however, must have attracted the attention of this unsavory little rascal, and he forthwith improved the occasion to take a trial trip into "fresh fields and pastures new." And the juicy verdure of our wheat and corn fields proved so attractive to the hungry immigrant that he hastened to send for his family, and make preparations for establishing himself among us. At all events here he was this fall, as large as life and with plenty of company trying to find a winter home around straw piles, under rails and boards and in similar situations as is his habit further south. From present indications, however, he is likely to become disgusted with our climate, since, as Dr. Shimer long ago discovered (by virtue of being a physician, no doubt) he is subject to *bronchial* troubles, which too great a degree of damp and cold would in all probability aggravate. Consequently we may expect him to beat a retreat from Minnesota after the present season, and he has our best wishes that he may *not* "stand upon the order of his going," but go at once. As this insect has hitherto been so rare in our State, it may not be amiss to devote to it a few words of description. It belongs to the order of "True Bugs" (*Hemiptera*), and to the section *Heteroptera* or "Half-wings," which are characterized by their wings being horny, or parchment like at base, and thin and membranous at the tips, and appearing as if crossed on the back when the insect is at rest. All of the true bugs are provided with a lancet-like beak and subsist on liquid nourishment only; consisting either of the juices of plants or the blood of animals. Many of these bugs are fierce cannibals, and pray mercilessly upon other insects, and are among our most efficient allies in the destruction of noxious species. The chinch bug, however, is exclusively a vegeta-

ble feeder, and is especially fond of grain and grasses. It is a small species, only about one-eighth of an inch in length and one-third as broad. The head and thorax are black and the wings dingy white; with a small black spot on each side. It flies readily, and during late summer is frequently on the wing; but earlier in the season, although it may have attained its wings, it seems to prefer traveling from one field to another on foot. It hibernates in the perfect state, under any convenient shelter it can find, and, in the spring, the females lay their eggs, which are mere specks, around the roots of growing grain. The minute larvæ, hatching from these eggs are at first of a pale color, but gradually become dull red. In form and habit they differ from the mature insect only in the absence of wings. They work their way forward from the roots upon which they are hatched and soon by pumping out the sap destroy the vitality of the stalk and prevent the grain from developing. After the third moult the rudiments of wings appear in the shape of little brown pads at the base of the thorax, and the insect is said to be in the pupa state. It soon after casts its skin for the fourth time, and appears with full grown wings, in its perfect state.

In case this formidable grain pest should take a notion to adapt itself to our climate, it would be advisable for farmers to take such precautions as they can to prevent it from harboring around their fields. The best preventive is to gather up all rails, boards and loose wood and destroy the bugs hiding under them, and above all, burn rubbish and old straw in the spring. Wet weather during late spring is the best natural check on this insect, as, if the ground be very wet, the young bugs are sure to perish. In the section of the country where it commonly prevails, it has many insect enemies, and it is eaten by quails and other small wild animals, in great numbers.