

MISCELLANEOUS ENTOMOLOGICAL PAPERS, BY F. M. WEBSTER, FEB.
1894.

We have just received a neat pamphlet of 59 pages, which forms Bulletin 51 of the Ohio Agricultural Experiment Station. It is by Prof. F. M. Webster and like all his work shows careful preparation.

The insects treated of in the first part are: The asparagus beetle, the western corn root worm, the broad striped flea beetle, blister beetles, the basket worm, the cabbage aphid and the apple leaf louse.

An interesting account of the insects which have been introduced into the State is given under the head of "Some insect immigrants in Ohio." There appears to have been two great highways which insects imported from Europe have followed: those which have entered the State at its northeastern corner and spread westward, and those from Southern Europe which have generally entered by way of the Ohio Valley and have a more or less restricted northern distribution.

In the article "Insect foes of American Cereals" the writer is evidently dealing with a subject of which he has made a special study. By patient observation and the application of practical common sense, Prof. Webster has made some important discoveries in Economic Entomology. Not the least of these is the fact recorded in this pamphlet that the apple aphid passes part of the year as an injurious enemy on wheat. Infact Mr. Webster says: "So far as my own observations go, it is more detrimental to the wheat than to the apple." This is an important discovery and will doubtless draw the attention of entomologists to this important subject of the "Alternation of Generations" among the aphides—a line of investigation which has engaged much of the time of Messrs. Riley and Howard at Washington. Speaking of remedies, Prof. Webster says: "It would appear almost visionary to advocate spraying apple orchards with kerosene emulsion in mid-winter to protect the wheat crop, but nevertheless one of the most serious enemies of young fall wheat passes its egg stage on the twigs of the apple during the winter season. I refer to the apple leaf louse, (*Aphis mali*, Fab.)"

"Soon after the young wheat plants appear in the fall the winged viviparous females of this species flock to the fields, and on these give birth to their young, which at once make their way to the roots, where they continue reproduction, sapping the life from young plants . . . though they are seldom killed outright, these infested plants cease to grow, and later take on a sickly look, and not until the aphid abandons them in autumn to return to the apple, do they show any amount of vigor. It is very seldom that the affected plants fully recover, at least in autumn; and the result must be to reduce their productiveness the following year." The eggs of the apple leaf aphid are deposited on the twigs and limbs of apple trees late in the autumn; these do not hatch until the following spring; the plant lice remain on the apple trees for two or three generations, when winged females are produced, which fly to grasses and weeds and there pass the summer. After the young wheat is up in the autumn, the lice congregate on the plants and reproduce rapidly.

The above is briefly the life history of this insect in Ohio as worked out by Prof. Webster by careful experiments which are detailed in the Bulletin. At Ottawa this probably may also, to a large extent, be the case; but the aphid is also sometimes abundant on young apple trees right through the season. It is, however, seldom injuriously abundant in Ontario, although in British Columbia it is to-day one of the most serious enemies of the apple grower.

Prof. Webster's paper will doubtless cause many other entomologists to study this insect more closely, when it is probable that further discoveries will be made, perhaps not less interesting than that now discussed.

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