

Parasite of the Tomato Sphinx.

590. SIR,—I send to your address a specimen of a tomato worm, which I believe to be a female, with some of the eggs attached. From their appearance under the glass, I am led to suppose that after a certain time these eggs are deposited in the ground, where they hatch out the following season to pursue their destructive work among the tomato plants. Kindly give through the Journal any information you can command on this subject and favor

GEO. C. MOORE, *Eglinton, Ont.*

Reply by Prof. Fletcher, Entomologist, Central Experimental Farm, Ottawa.

The objects taken by Mr. G. C. Moore for the eggs of the Tomato Worm are really the cocoons of a beneficial parasite belonging to the same class as the Wasp and Ichneumon flies. The eggs from which the tomato-worms come are laid by a large moth. It is sometimes very abundant, but when this is the case, many of them are usually destroyed by this parasite, which is known by the name of *Apanteles congregatus*. The eggs of this insect are laid by the female fly within the body of a caterpillar by means of a needle-like ovipositor, with which she pierces the skin. Sometimes as many as 200 eggs are laid in a single caterpillar (207 cocoons of this parasite were actually counted on a large specimen of the Tomato Sphinx found in London, Ont.) The young maggots upon hatching feed upon the fatty parts of their victim and, when full-grown,



FIG. 408.—Cocoons of *A. congregatus* on Sphinx caterpillar.

force their way through its skin, and work themselves out as far as the last joint of their bodies, when they begin spinning their small white cocoons, which stand on end and present the appearance of the figure. From these eventually the small active black four-winged flies emerge.

I may mention that it is a common mistake for those not acquainted with entomology to take these cocoons for eggs, but eggs are only laid by insects in the perfect state.

The Fertilizing Value of Spent Hops.

591. SIR,—Would spent hops from breweries be good on heavy clay land, cultivated as a vegetable garden; also in a plantation of apples, pears and small fruits? If so, how would you apply it, and in what quantities?

FRED HOSKIE, *Port Colborne.*

Reply by Prof. Shutt, Chemist, of Central Experimental Farm, Ottawa.

In hop refuse the more valuable constituents of plant food, viz., nitrogen, phosphoric acid and potash, are present in such small quantities that, considered as a fertilizer, this material cannot be looked upon as possessing any commercial value.