

Entomological Department.

The Potato and Tomato Worm.

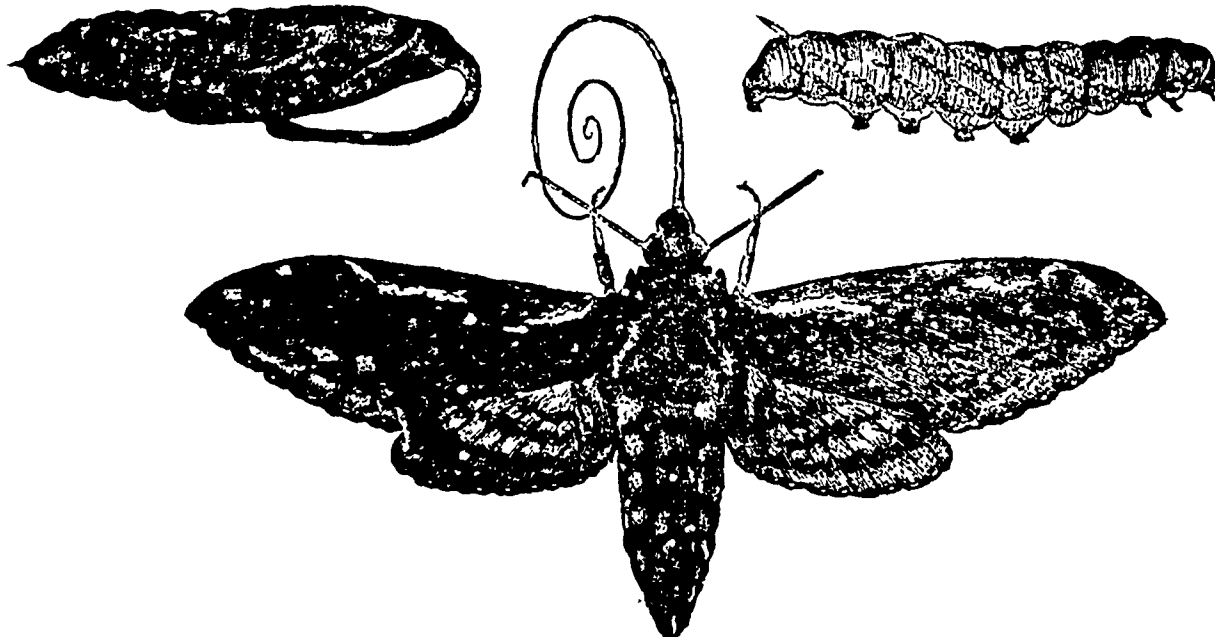
During the last few weeks we have received a number of specimens of the larva of the Five-spotted Sphinx Moth (*Sphinx quinquemaculata* Lw.), commonly known as the "Potato," or "Tomato worm." When associated with the latter vegetable it is vulgarly supposed to be an exceedingly dangerous animal, biting or stinging any one who comes in its way, and producing disease or death by the wounds it inflicts. As we have shown on several occasions in former years, in the pages of the CANADA FARMER, these alarming ideas are mere superstitions; the caterpillar is perfectly incapable of inflicting a wound upon a human being; the juices of its food-plant however, are poisonous, and will no doubt produce severe inflammation,

and possibly even death, if received into the blood through a flesh cut or open wound. When we remember that both the Potato and Tomato belong to the nightshade order of plants (*Sol. naceae*), the foliage of which is in almost all cases poisonous, e.g. in Montano, Tobacco, the Deadly Nightshade, the Datura or Thorn-apple, &c., we need not feel at all surprised that careful persons gathering tomatoes should occasionally be poisoned by the rank juice of the plant getting into an open sore. In such cases ignorance suspects nothing from the familiar plant whose fruit we find so wholesome and delicious, but looks about for some animated author of the mischief. Our poor innocent caterpillar is then observed, and being unfortunately rather repulsive in aspect and ornamented with a stiffly projecting tail, he is at once found guilty of a capital crime, and is put to death without further evidence, and without waiting for a word of enquiry or defence.

The caterpillar, for whom we are pleading, has been more than usually abundant this year. We have found numbers in our own garden, and have received specimens of it from Dr. Dewar, Port Hope; Wm. McGrath Esq., Erindale. Credit; the Rev V. Clementi, North Douro, and others. It grows to a length of three and a half inches, and the thickness of a man's little finger. Its color is very variable in different specimens, ranging from light green to deep olive, and from pale brown to black; the sides are ornamented with a series of seven oblique stripes, paler in color than the rest of the body; below these is a row of oval spots, which enclose the spiracles or breathing holes. Most conspicuous is the creature's horn or tail, a stiff thorn-like projection placed upon the posterior extremity of the back. The worm is a most voracious feeder and grows rapidly; it usually attains its full size in September, though we frequently see specimens in October. When mature it buries itself in the earth, a few inches below the surface. Here it undergoes its transformation into the pupa or chrysalis state.

The chrysalis is often brought to view when digging potatoes in the autumn. It is of a deep chestnut color, and is remarkable for having the extremity of its head produced into a long slender case, containing the proboscis, that bends over till it touches the breast, and thus forms an appendage very much like an ordinary jug-handle in shape. In this condition the insect remains underground all winter and until the following summer is well advanced, then it bursts its shell, works its way to the surface, and appears as a huge winged moth.

The moth is of a greyish color, variegated with black; its wings when expanded for flight measure five inches from tip to tip, while the body is fully two inches long; the latter is adorned with five bright yellow spots on each side—whence its name of "Five-spotted Sphinx." Most remarkable is its enormously long proboscis or sucker; when not in use it is coiled up like a watch-spring beneath the head, but when



required to draw up the nectar from long throated pelunias and other flowers, it stretches out two or three times the length of the creature's body.

The accompanying illustrations afford life-like representations, in all but color, of the three stages of existence of this interesting insect.

Economic Entomology.

At the recent meeting of the American Association for the advancement of science held at Portland, Maine, a valuable paper was read by Dr. J. L. LeConte, entitled "Hints for the promotion of Economic Entomology in the United States." As Dr. LeConte is the ablest living Entomologist in America, and his paper contains many suggestions of the utmost value to us here, as well as to our neighbors across the lakes, we feel sure that our readers will be glad to have the following abstract of his remarks, for which we are indebted to the enterprise of the *New York Tribune*, and its series of scientific extras.

"The paper opened with a sketch of the history of Entomological science in America, beginning with Thomas Say in 1817, who was the best instructed zoologist of his day in this country. The text-books on Entomology were then mainly those of Fabricius, Herbst and Latreille, and foreign classifications were adopted by our naturalists. Careful observations of a few noxious species by Prof. Peck and L. T. W. Harris were among the earliest contributions to economic entomology. The work of that day was in determining species, and the results attained by Say and a smaller number of his collaborators fixed many hundreds of a species permanently. Dr. T. W. Harris of Massachusetts was a man whose confidence overshadowed his merits, and he was not duly appreciated by himself or by others; and he neglected, or was unable to publish, the written results of his re-

searches to a great extent. Dr. C. Zimmermann, a German by birth, published valuable monographs on *Zabrus* and *Amara* before coming to this country; but here he would never publish the results of his laborious investigations. Dr. LeConte here acknowledged his own indebtedness to Zimmermann's manuscripts for his studies. They contain the large part of a systematic work on Coleoptera, with descriptions of many hundred new species found in the Southern States.

"There was a long period of apathy in entomology after which the work was resumed by Helderich, Michener, Zeller and the author of this paper. The first serious monograph since made was that of the *Entomologist*, published in 1857 by Dr. LeConte's father, Major John LeConte, in *The Boston Journal of Natural History*, and illustrated with figures of all the species of the world. This work was one of the first of the kind in America, and it caused a great deal of interest, as it was prepared abroad and sent under Major LeConte's control. The great period in American entomology began in 1855. In alluding to the brilliant array of American scientific work in all departments of knowledge dates from this

period. Dr. LeConte paid a glowing tribute of admiration to Prof. Agassiz, and expatiated on the impulse he had given to correct habits of study and research among naturalists; and expressed regret that he (Dr. LeConte) had not been educated at the feet of that master. The Smithsonian Institution much advanced the interests of science

from this date by fostering the costly work of publication. Valuable assistance in the preparation of the *Work of American Entomology* has been rendered abroad in the publications of Hagen, Loew, Osten-Sacken and DeMeuse. Dr. LeConte here made a comparison between the entomological work published by the Smithsonian and by the State of New-York, very much to the disadvantage of the latter, which he said was compiled by a person ignorant of the science, and illustrated by a draftsman untrained in drawing subjects of natural history.

"The biological studies of insects, begun years before by Dr. Harris, were worthily continued by Dr. A. Fitch of New-York, and the official entomologists of several Western States. Most prominent was D. D. Welsh of Rock Island, Ill., who founded a monthly magazine, 1835-1837, *The Practical Entomologist*, at Philadelphia, afterwards transferred to St. Louis as *The American Entomologist and Botanist*. This magazine did good service in fearlessly denouncing quack methods for the destruction of noxious insects, and spread abroad much useful information. Among the most recent and valuable aids to the science, and not unsuited for popularizing its truths, is *The Guide to the Study of insects*, by Dr. A. S. Packard, jr.

The Need of Entomological Researches.

"No branch of zoology is of more importance to our agricultural interests than entomology. It is estimated that Congress and State Legislatures have expended for this class of investigations between 1776 and 1899, \$90,000 to \$100,000, or about 1,000 a year, while the actual annual damage done by insects throughout the United States cannot be less than \$100,000,000. These figures are taken from Dr. Welsh's publication (*Am. Entom. and Bot.*, II., 1899). It is evident that until the science of entomology has made considerable progress, the expenditures of State and individuals towards suppressing noxious insects may be of comparatively little value, and waste in the publications of the State of New-York an instance of how money enough to have printed almost every useful book on entomology that has since ap-