RIO, TO THE RINGTON.

uch pleasure to oth in member-

of insects, both habits and life our extensive of XVII. have

eral instructive illustrations as

ch is due to the at city. rd to the very country by the

formation as to mber of leading ig, among other of a Government in appointment. called, and gave a, and as to the omologist.

subject as thus e most energetic ed a preliminary ts last season to

Conomic Entomiberal provisions

ble, and furnish, itario, almost the chards, fields and

obtained should the appointment step in the right

MOLOGICAL

unusual invasion eneral or serious e or horticulture; ed by insects have were expressed in

The great staple productions of our country, such as wheat, oats, barley and hay have not, so far as we have been able to learn, suffered material injury from insects in any locality in our Province. But, while the farmers of Ontario have thus been exempt, our neighbours across the lines have not enjoyed the same immunity. In the neighbouring State of New York, the loss occasioned by the Hessian fly has been estimated at over \$100,000. In the great wheat fields on the Pacific slope and also in those of Dacotah and other Western States, there have been much severer losses from the same cause. Early in August I received from a correspondent in Dallas, Oregon, samples of wheat seriously injured by another destructive insect, which as yet happily has not to our knowledge occurred in Canada. This is a small, yellowish worm from one-sixth to onefifth of an inch in length, which is found within the stalk of wheat about or between the joints; sometimes there are four or five larvæ in a single stalk, one above each joint for the first four or five joints from the ground, which cause the stalk to prematurely ripen or wither, and thus occasions great loss. This insect, which is known as the wheat Isosoma, Isosoma tritici (Riley) has been observed for two or three years past injuring the wheat in Illinois, Tenessee and Missouri, and has prevailed in some localities to such an extent as to rain the crop. From the observations thus far made it seems that there is only one broad of this insect during the season, and that it passes the winter in the straw, either in the larval or pupal state, the perfect flies appearing the following spring. Under these conditions the remedy is obvious, viz., burn both the stubble and the straw after harvest; rotation of crops has also been found beneficial.

The cabbage crop has been materially injured by the ravages of the cabbage Anthomyia, Anthomyia brassicae, a two-winged fly, which in the larval state burrows in the centre of the stem of the young plant and causes its death. This cabbage insect is a native of Europe, is very troublesome in Britain, and has been known as a very destructive insect in this country for about thirty years, but nothing is known either of the date or the method of its introduction. The flies appear in the spring and deposit their eggs upon the stems of the young cabbages about or a little below the surface of the ground. The eggs hatch in about ten days, when the young larvae usually bore into the interior and work their way down towards the root; sometimes they merely gnaw grooves on the outer surface of the stem and by this find their way to the roots, on which they feed. When full grown they change to yellowish red chrysalids in the earth from which the flies shortly escape, the whole period of their life history, thus briefly traced, occupying about eight weeks. Usually the plants attacked soon wilt and finally die; it is believed that

there are two or three broods of these insects during the year.

Several remedies have been recommended, such as dipping the roots and stems of the young plants in strong lye, or a mixture of earth and cowdung diluted with water, or a thick mixture of soot and water; any bitter or alkaline substance which would adhere well to the outer surface would probably deter the flies from depositing their eggs. Lime added to the soil in the proportion of 100 to 150 bushels to the acre, after ploughing, and well harrowed in so as to keep it near the surface, has proved a very effectual preventive measure; or even where the insects are at work upon the plants, if the earth is scraped away from about the stem of each, and a handful of lime dusted around it, and the soil again drawn up to the stem, the plants will sometimes recover. Coal dust, gas lime and

stimulating artificial manures have also been recommended.

The cabbage has also suffered from injuries caused by the common cabbage worm, the green caterpillar of the cabbage butterfly, which feeds upon the foliage and often disfigures it to such an extent as to render it unmarketable. The habit of this caterpillar, feeding as it does among the folds of the leaves, makes it extremely difficult to reach with any sort of poison without at the same time rendering the cabbage unfit for use. Pyrethrum, or insect powder, which is the powdered flowers of Pryethrum cinnerariaefolium, has been used with good effect, either dusted on the plants or mixed with water and applied to them with a syringe, and this remady is not in any way objectionable or poisonous. The Pyrethrum plant is in my experience quite hardy in Ontario, has stood the severe cold of the past two winters without injury, and flowered freely. It is easily raised from seed, and being a perennial species, when once established it will continue to