

by this valuable system of protection to aid by all lawful means those who are appointed from time to time to enforce the horticultural laws of British Columbia.

The reorganization of this Society is bound to have an important and beneficial effect on the agricultural and horticultural development of this Province. The presence of trained experts here to-day, to give us the benefit of their research and experiments, is a sure guarantee of a great forward and benevolent movement for the good of all concerned.

May our deliberations result in stimulating our people to greater efforts and deeper research in all matters that pertain to insect-life and plant pathology is the earnest desire of the Inspector of Fruit Pests.

### THE IMPORTANCE OF ECONOMIC ENTOMOLOGY AS A SUBJECT OF EDUCATION.

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In this vast country with its wonderful agricultural and horticultural future the study of economic entomology is of vital importance to the general welfare of the country. The business-man in town is as much concerned as the farmer, fruit-grower, and lumberman; the success of our agricultural communities and forestry-work will always, in a great measure, affect the business of our cities and towns and the general finances of the country.

With the rapid development of the land, the insect pests are not yet very noticeable, except in the more settled districts, but such pests as are native to this country, and such introduced pests as have become established, are slowly but surely spreading and increasing throughout the country, and consequently increasing the already great annual loss of crops, which, in cash value to the individual grower, would be the equivalent of a high rate of interest on his legitimate profits, which, if he only realized the extent of this tax, he would surely try to avoid.

It is stated that 50 per cent. of the insect pests of the United States of America are introduced species. Introduced insect pests are generally the most serious and the more difficult to control, as frequently the parasites of these pests do not exist in the country into which they have been introduced, and as the parasites are by far the best, and in some cases the only means of keeping insect pests in control, it therefore becomes essential that the life-histories of insect pests be studied, both in this country and in the country or countries from which they have been introduced (where they may not be considered serious on account of parasitic control), that the parasites may also be introduced when found necessary.

The very rigid inspection of nursery stock, plants, and fruit enforced in Canada makes it almost impossible for insect pests to be introduced through these channels, but there are minor channels through which insect pests could and probably are being introduced which it would be impossible for the Government to entirely control. I might mention such possibilities as migration from the United States of America, introduction with general effects of immigrants and in material in which merchandise is packed and shipped from foreign countries; these minor channels are a real danger which cannot be entirely avoided. The business-man in town may leave the packing material of imported products lying about, or uses it again for packing things for shipment to home points instead of destroying it; also the farmers and fruit-growers are apt to leave packing material about for some considerable time before destroying it, thereby giving insect-eggs which it may contain an opportunity to hatch and the minute larvæ to get to some food-plant which may be near, or imagos may emerge from pupæ which the packing may contain.

The most destructive pests are generally very small and would, on that account alone, escape notice; even the larger species if seen would not attract attention unless the observer were a live entomologist. In the event of the introduction of a few insect pests in this way they could escape notice for some considerable time, perhaps

until they are actually doing serious damage and have become well established. A small infection, if immediately noticed, can generally be stamped out without much trouble or expense.

The reason that a pest could become well established in this country is, I think, obvious; the general public, particularly the farmers and fruit-growers who are most concerned, do not realize the importance of economic entomology, and consequently take but a passive interest in the great work the Department of Agriculture is doing for them on this subject. It carries on investigations in all branches of agricultural science, and issues its bulletins and circulars when necessary or desirable, giving the growers information and advice on the various problems before them; but it lies with the growers to act upon such information and advice, which they no doubt do in matters which they understand and appreciate, but how many realize the importance of economic entomology to themselves? To appreciate the importance of this subject one must have at least an elementary training in the study of insect economy.

Amongst the later generation of farmers and fruit-growers we find more people with a business training who appreciate the importance of economic principles, and who are anxious to obtain the best possible results for their investments and labours; they make use of the information and advice provided to the best of their ability, but in the case of insect pests most of them have not the elementary knowledge, nor the powers of observation, necessary to make use of the advice to their best advantage.

To be successful in this important branch of his work the farmer and fruit-grower must in the first place take an active interest in insect-life; they must learn to recognize the more common insects that they meet with every day, and learn the metamorphoses of insects generally; they should also develop their powers of observation sufficiently to be able to notice a small insect at rest on a leaf, flower, or fruit. Once a man has acquired a slight knowledge of insect economy, he cannot help but be greatly interested in the subject; once a practical interest is taken by the farmer and fruit-grower, there will be little danger of a serious pest escaping notice for any length of time. They may not recognize the insect, but they would be all the more likely to take notice of it on that account, and have it identified at the earliest opportunity, and there would be very few growers reluctant to spray and use other preventive and remedial measures.

Man has a natural love for nature which he seldom realizes, and which in later years is all too frequently entirely superseded by the all-absorbing hunt for the elusive dollar. It would be thought strange if a child did not love the flowers, birds, and butterflies; it is the natural instinct of a child to be interested in nature; yet very little effort is made to develop the child's natural instincts to a practical purpose. I think an effort should be made to get the children in the schools practically interested, by giving them, say, one hour a week for instruction in botany and economic entomology, not dry scientific matter which would be all Greek to them, but teach them to recognize the common flowers, weeds, and trees. The same with the common insects; explain their metamorphoses to them and their economic importance; teach them to place the insects in their proper order, according to their structural peculiarities; give them a very elementary and popular training in these subjects, and in later years we will have a great number of people in this country with a fair knowledge of plant and insect economics, and also tend to develop systematic and economic entomologists, who are greatly lacking in this country. Induce the older children to form field-naturalist clubs in each district and assist them in every way possible with instruction and advice. This country needs systematic and economic entomologists, and needs them badly; we cannot have too many of them, and they are not made in a day. Let us get busy to attain this end; it will incalculably benefit our great Dominion.