

outbreak conditions; estimates of insect losses; and studies of the life-histories and controls for grasshoppers, wireworms, cutworms, European corn borer, white grubs, root maggots, flea beetles, pea aphid, hessian fly, wheat stem sawfly, etc.

Forest Insects.—The Division of Forest Insects conducts investigations on insects affecting forest, shade and ornamental trees throughout Canada. The Division has permanent laboratories at Ottawa, Ont.; Fredericton, N.B.; Berthierville and Laniel, Que.; Indian Head, Sask.; Vernon and Vancouver, B.C.

Examples of insects under study are spruce budworm, larch sawfly, larch case bearer, hemlock looper, sawyer beetle, white pine weevil, bark-beetles, balsam woolly aphis, European spruce sawfly, European pine shoot moth, etc. Important investigations of insects affecting deciduous trees include the European beech scale, maple leaf-cutter, birch leaf skeletonizer, birch sawfly and the grey birch sawfly.

Systematic Entomology.—The work of the Division of Systematic Entomology includes: maintenance and upkeep of the Canadian National Collection of Insects; faunal surveys; taxonomic studies based on the material in the National Collection; identification of specimens of insects for branch officers, also for museums, universities and private individuals interested in entomology.

Foreign Pests Suppression.—The Division of Foreign Pests Suppression is primarily concerned with the inspection of import and export shipments of plants and plant products for insect pests and plant diseases. Inspection stations are maintained at Halifax, N.S.; Saint John, N.B.; Quebec and Montreal, Que.; Toronto, Niagara Falls and Windsor, Ont.; Winnipeg, Man.; Estevan, Sask.; Vancouver and Victoria, B.C. Surveys are also made in regard to the eradication or spread and control of introduced species; among these are the gipsy moth, brown tail moth, European apple sucker, European pine shoot moth, Mexican bean beetle, satin moth, lecanium scale, European corn borer, etc. Practically all countries now require certificates of health to accompany shipments of plants and in many cases plant products, such as fruits, vegetables and grains.

Various Investigations.—At the Annapolis Royal, N.S., laboratory valuable results have been obtained in the development of new and cheaper poisons for insect control. The adoption of special localized spray schedules has resulted in greatly improved crops and decidedly better market prices.

The Entomological Branch maintains a specially equipped parasite laboratory at Belleville, Ont., where millions of specimens of imported parasites have been reared for liberation in areas where destructive insect pests have been abundant. The laboratory at Kamloops, B.C., is engaged, primarily, in investigating insects affecting cattle and other live stock such as warble fly, blackflies, mosquitoes, ticks, etc. Officers at laboratories maintained at Annapolis Royal, N.S.; Hemmingford, Que.; Vineland Station, Ont.; Agassiz, Vernon and Victoria, B.C.; are engaged in studying insects affecting orchard and small fruits, such as codling moth, strawberry root weevil, oriental fruit moth, leaf-rollers, apple tree borers, curculios, apple maggot, scale insects, etc. Important progress has been made in developing control measures for these insects.

In addition to the above, other officers are engaged on exhibition work, and in investigations relating to greenhouse insects, flower garden insects, household insects, etc.

The Fruit Branch.—The Fruit Branch, whose activities have relation to every line of endeavour in the fruit, vegetable, honey and maple sugar industries of the Dominion in packing, marketing and transporting, is responsible for the