

and of final cutting. If these and other measures are based upon adequate knowledge the incidence of indigenous disease can be kept within tolerable limits. On the other hand diseases that have been brought in from foreign countries, such as white pine blister rust, Dutch elm disease, and chestnut blight, must be controlled largely by direct methods such as the eradication of alternate hosts and the removal of infected trees.

In Canada investigations in forest pathology are carried on by the Federal Government in the Division of Botany and Plant Pathology, Science Service Branch, Department of Agriculture. In addition to the staff at Ottawa, field laboratories are maintained at Fredericton, N.B., Toronto, Ont., and Victoria, B.C. It is likely that a laboratory to serve the Prairie Provinces will be established during 1948. No work in forest pathology is done by any of the provinces except Quebec which maintains its own service.

Forest Entomology.—The study of forest insect problems in Canada is entrusted to the Forest Insect Investigations Unit of the Division of Entomology, Science Service, Department of Agriculture. Laboratories are maintained at Ottawa, Ont.; Sault Ste. Marie, Ont.; Fredericton, N.B.; Winnipeg, Man.; Indian Head, Sask.; Vernon, B.C.; and Victoria, B.C. In addition there are four sub-laboratories and a number of temporary field stations and camps. In conjunction with various government and commercial agencies surveys are made, the results of which are collated at Ottawa. Fundamental studies, which are purely scientific, are then made with a view to understanding relationships underlying fluctuations in insect population. It is anticipated that all these studies will in future be made at Sault Ste. Marie, Ont. Other functions of the Division are those dealing with emergency projects and control operations. When sudden and spectacular outbreaks of insects cause public alarm the Division of Entomology is called upon for remedies; as these are applied a thorough study of the bionomics of the species involved is made. Control operations are classified as silvicultural, biological, chemical and mechanical. Silvicultural and biological methods offer the best solution for the majority of forest-insect problems.

In order to salvage infested areas forest entomologists study all outbreaks to determine the condition of the forest, the severity of the attack, the probable rate of future infestation, and the rate of deterioration of timber subsequent to death from insect attack. A regular system of reporting by companies and forest services has been developed for this purpose and prognostications and recommendations are made on the basis of the reports.

To prevent the introduction of insect pests from other countries, the Plant Protection Division of the Department of Agriculture is authorized by the Destructive Insect and Pest Act to examine at certain specified ports all importations of trees and to issue clearances if satisfied that the trees are free from contamination.

A more detailed analysis of the activities of the Forest Insect Investigations Unit is given in a special article entitled "Noxious Forest Insects and Their Control", which appears at pp. 389-400 of the 1947 edition of the Year Book.

Forest Insects Control Board.—The mounting loss and damage through forest insects in Canada is a matter of great concern to governments and the forest industry in this country. In particular, the present uncontrolled epidemic of spruce budworm threatens the loss of raw materials on a scale approaching a national disaster.