

Forest Products Research.—The Forest Products Laboratories of Canada, a Division of the Forestry Branch of the Department of Northern Affairs and National Resources, conducts forest products research in its laboratories at Ottawa and Vancouver. This research is aimed at supplying the basic and practical knowledge required for the best possible utilization of Canada's forest resources and the provision of goods of satisfactory quality to the ultimate consumers. Research includes the determination of the physical, mechanical and chemical properties of wood and their relation to adaptability in use; studies of the factors affecting the quality of wood and of manufactured wood products; determination of the factors that cause wood waste in logging and manufacturing; research and investigation on the preservative treatment and painting of wood and on the use of wood for the manufacture of cellulose, wallboards, alcohols, organic acids, and extractives; studies to determine possible new economic and more valuable uses for woods; and research aimed at determining methods and means for the practical and economical utilization of all wood substance available from the annual timber harvest. Additional work includes the application of laboratory findings to the standardization of lumber grades, development and improvement of engineering designs in wood, and the development of timber specifications for building codes of Canada. By means of numerous technical publications and through other channels, continuous effort is devoted to the widespread dissemination of research results. To assure that research programs are kept abreast of industrial requirements, the Forest Products Laboratories maintain close co-operation with similar organizations in other countries, as well as with the provinces and the forest-based industries generally.

Pulp and Paper Research.—The Pulp and Paper Research Institute of Canada is a corporation supported jointly by the Canadian pulp and paper industry, the Federal Government and McGill University. In its laboratories at Pointe Claire, Que., which were provided by the Federal Government, research is carried out in the whole broad field of pulp and paper processing, from the growth and harvesting of the forests through the various chemical and mechanical manufacturing processes to the properties of end-products, including the improved utilization of both liquid and solid wastes. Further details are given at pp. 523-525.

Forest Biology.—Research on forest insects and diseases is carried out by the Research Branch of the Department of Agriculture which maintains regional laboratories and field stations in all principal forested regions of Canada. The forest insect and disease survey is a Canada-wide project conducted by the Branch in co-operation with the provincial forest services and forest industries, the primary objective of which is to maintain an annual census of forest insect and disease conditions, and to detect and predict the occurrence of outbreaks. Results of the survey are made immediately available to the owners and operators of forest lands for use in planning salvage programs and directing control operations or other measures to reduce damage. An important secondary objective of the survey is extension of knowledge of the insects and fungi affecting forest trees, including their life histories, ranges of distribution and host-parasite relationships.

The research programs of the regional laboratories are designed to lead to comprehensive understanding of the biology and ecology of the more destructive forest insects and fungi, and the causes of fluctuations in abundance or severity of damage in time and place. Problems under intensive study include insect defoliators, leaf diseases, sucking insects, stem cankers, bark- and wood-boring beetles, trunk and root decays, tip- and root-boring insects, and diseases of tree seedlings in forest nurseries. A recent development is the initiation of investigations of virus diseases of forest trees. Laboratory research on development, physiology, nutrition and taxonomy complements the field ecological studies of insects and fungi in the forest environment. Problems of broad national importance in insect pathology, cytology and genetics, bioclimatology and chemical control are investigated by Branch sections which are appropriately staffed and equipped for research in these special fields.