

and in the northern Territories. Data from air photographs are correlated with field observations to develop new techniques for estimating timber. The use of stand volume tables and various methods of field sampling are being investigated and compared. Research is continuing in methods for measuring tree images and tree shadows to determine heights, crown widths, canopy density and other data from photographs taken in different seasons of the year under various conditions. The use of large-scale photography of sample areas is also being investigated and studies are being made in the identification of species and sub-types.

Adequate protection of forests against fire is of vital importance in Canada. The Forest Research Branch works in full co-operation with provincial forest services in almost all phases of forest fire control. Major contributions of the Branch have been in the fields of fire danger measurement and fire control planning. Investigations are being made of forest fire behaviour, of the use of prescribed fire for hazard reduction and seed bed preparation, of how to improve the reporting of forest fires, and of fire damage appraisal and related factors in forest protection standards. Studies are being continued in the use of chemicals for fire suppression and pre-suppression, of fire fighting equipment and techniques, and of the use of aircraft in forest fire control. Another important field of endeavour is the study of lightning and other fire causative agencies.

Forest Products Research Branch.—The work of this Branch is directed toward obtaining the necessary background information and data on the properties of Canadian woods, developing new and better uses for wood products, improving manufacturing processes, and effecting more complete utilization of wood substances available from the forest. Its activities, covering every aspect of forest products except that relating to paper, include 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 into fire retardant treatments, the preservative treatment and painting of wood and 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 substances available from the annual timber harvest.

The program is conducted at two laboratories—one at Ottawa and the other at Vancouver—with units consisting of timber engineering, containers, glues and gluing, veneer and plywood, timber physics, wood chemistry, wood preservation, paints and coatings, wood pathology, wood anatomy, logging, lumber manufacture and lumber seasoning. The results of Branch Research are made available to the thousands of plants comprising Canada's timber manufacturing and wood-using industries. By means of numerous technical publications and through other channels, continuous effort is devoted to the widespread dissemination of research results.

Close liaison is maintained with the forest products industries and the users of timber to ensure that the work of the Branch is of optimum national benefit. Assistance is received from a National Advisory Committee comprising members representing lumber manufacturers and other wood-using groups. There is constant co-operation with various government units in the performance of many special research investigations concerned with the use of wood. Research into the use of wood in housing construction and as an engineered material continues as an important activity that is undertaken in co-operation with the National Research Council and the Central Mortgage and Housing Corporation.

Officers of the Industrial Liaison Service of the Branch visit sawmills and other wood-working plants in their respective regions to keep industry aware of research developments and technical advances which may assist in the solution of industrial problems. The field representatives also keep the laboratories informed of field problems on which research would be of value.