

Subsection 3.—Research in Forestry

Forest research and forest products research facilities have been greatly expanded throughout Canada during the past five years. The Federal Government, several provincial governments, the Pulp and Paper Research Institute of Canada, the four universities with faculties of forestry, and a number of the larger industrial companies conduct research in these fields. The Forestry Branch of the Federal Department of Resources and Development conducts research in silviculture, management, forest inventory methods, forest-fire protection and forest economics. An extensive program of research is under way on the experiment stations and on other lands, where an increasing proportion of the total effort is being expended in co-operation with provincial authorities and industry.

Forest Research.—Research in silviculture and management has been concentrated since World War II upon problems of regeneration, growth and stand development, and on harvest cutting methods. A regeneration survey extending from the Rocky Mountains to the Atlantic Coast has provided information on the status of regeneration on cut-over and burned lands and has been followed by more intensive work to assess the factors responsible for the success or failure of regeneration and to devise practical methods of obtaining reproduction. Studies are made of growth and succession in the most important forest types and of development of a satisfactory basis for classifying forest sites for effective growth and productivity. Research in tree breeding is also carried on for artificial propagation by selection and development of superior strains. Research in forest management devises methods of applying the knowledge of silviculture, regulation of cut and protection in order to manage the forest at its highest production level.

In the field of forest-fire research, the Federal Forestry Branch is working towards full co-operation with the provincial forest services to achieve the best methods of forest-fire protection. The leading contributions of the Branch to date have been in the field of fire-hazard research and in the development of equipment and techniques for fire-fighting. Increasing attention, however, is being given to research in such fields as fire-control planning, visible area mapping, detection and communications equipment, and the training of fire crews. A number of provincial forest-protection services are also engaged in research activities. Notable advances have been made in several provinces in the development of forest communications equipment, the dropping of supplies to fire-fighters by parachute, and the design of mechanical fire-fighting equipment.

Research in forest inventory methods is of increasing importance because of the greatly expanded inventory programs being conducted in most provinces. Data from photographs are correlated with field work to develop new techniques of timber estimating. Various methods of sampling are being investigated and compared. Research is being continued in methods for measuring tree images and tree shadows to determine heights, crown widths, crown closure and other data from photographs taken in different seasons of the year under various conditions. Studies are also being made in the identification of species and sub-types and the classification