

utilization are conducted at the Ottawa and Vancouver Laboratories; analysis and testing of pulp and paper, methods of mechanical pulping, chemical pulping, printing, and fundamental studies are carried on at the Montreal Laboratory.

Since the Laboratories were established, many advances have been made in the technique of wood utilization. Improvements have been made in treating railway ties, telephone poles, mining timbers, and other structural timbers with creosote, water-soluble salts, and other chemicals. This has enhanced the value of wood as a permanent structural material and permitted its use for a variety of purposes for which it is otherwise unsuitable. The work carried out in the treatment of hardwoods, especially birch, beech, and maple, has been of particular value. Reductions in the cost of manufacture of pulp and paper, and improvements in quality of products have resulted from researches of the Laboratories. Of particular interest has been the development in the Pulp and Paper Laboratory of the Canadian Standards Freeness Tester and the Johnston Fibre Classifier. Valuable work has also been carried out in the manufacture of groundwood pulp and in the pulping of resinous woods and hardwoods.

The study of the significance of discoloration in timber, as for example in jack pine, red cedar, and Douglas fir, has been responsible to a considerable degree for curtailing rejection of such material. Researches carried out in the spraying or dipping of timber, notably the sapwood of the pines, with chemicals that are toxic to wood-staining organisms have assisted in curtailing losses on this account, which in some years amounted to as much as one million dollars.

Through researches carried out in the Laboratories and at woodworking plants important advances have been made in seasoning, both in the open air and in experimental dry-kilns. This work has been particularly valuable in both Eastern and Western Canada in connection with export markets which are becoming increasingly critical of specifications. The work carried out has been of significance to exporters of both softwoods and hardwoods.

Mechanical and physical tests have been carried out on nearly all important Canadian commercial species of timber in accordance with the practices adopted by laboratories of countries of the British Empire and of the United States. A great deal of work has also been carried out on large structural timbers. This information has been used widely by Canadian engineers and by municipal authorities in the revision of building codes. It has also been made the basis for structural grades, for all species of Canadian woods of structural importance, which have been set up by the Canadian Engineering Standards Association. In logging operations in Canada a great deal of material such as limbs, small logs, defective logs, and species not ordinarily used commercially are left in the woods and wasted. At the sawmills quantities of bark, slabs, edgings, sawdust, and trim are consumed in refuse burners. The Laboratories are paying special attention to devising ways and means of curtailing this waste, and industry is becoming keenly aware of the importance of such work.

The Bureau of Northwest Territories and Yukon Affairs.—The conservation of the fur bearers of Canada is a matter coming under the jurisdiction of the respective Provincial and Territorial Governments. Nevertheless, the Dominion, as a whole, is concerned with the conservation of fur and of all wild-life resources. It was to co-ordinate the wild-life conservation efforts of the various Dominion Departments that the Advisory Board on Wild Life Protection was organized in 1916. The Board is specially authorized to advise with respect to the