

Microbiology: Investigations and experimentation into the possibilities of utilizing wood waste by microbiological means, including research with wood digesting organisms and the microbiological decomposition of wood.

WOOD STRUCTURE

Structure and Uses: Research into wood structure and its effect on the properties and behaviour of wood in service; investigations into the micro-structure of Canadian timber species and the effects and causes of irregularities in wood structure; studies on the reaction of wood structure to the penetration of chemicals, and on the use of chemicals to improve dimensional stability.

Anatomy-Growth Relationship: Co-operative studies with the Forest Research Division aimed at determining the effects of various natural growth conditions and of silvicultural practices on wood quality.

Wood Identification: Work related to the identification of wood and maintenance of a reference collection of woods of the world and the recording of data pertinent to wood identification.

Past Research.—Since their formation, the Forest Products Laboratories have followed a plan intended continually to expand the record of basic data on the properties and uses of Canadian timber species. Close contact with the work of other forest products research organizations throughout the world has provided additional and valuable information.

An extensive program of timber-testing has resulted in the accumulation of data on the mechanical properties of all Canadian commercial timber species. These tests were carried out on carefully selected clear specimens and on timbers of structural sizes. From these data, basic and working stresses have been computed and strength tables prepared for use in designs.

There have been two distinct approaches to research into the durability of various Canadian woods. Pathological studies have determined the types, conditions of occurrence and the deterioration caused by different fungi. These studies have extended to logs, pulpwood and other material in the round, through phases of their conversion and use. Results obtained have been interpreted and serve as a basis for preventive measures to eliminate or greatly reduce fungi infection. The second phase has dealt with the treatment of wood with preservatives to determine their suitability for use for various treating methods and to record the increased service life obtained. Data on increased durability obtained through the use of preservatives are now on record for many Canadian timber species.

The design and service value of containers have been investigated and records of resistance to handling and transit hazards are now available for containers of many types. Studies included re-design of containers in use and new designs for specific loads, as well as careful review of construction to determine the most efficient production of acceptable packaging.

The air-seasoning and kiln-drying of lumber have received intensive study and experimentation, and drying schedules and piling methods have been developed. These investigations have resulted in the accumulation of data pertinent to the seasoning of Canadian species of board and structural sizes, and the drying of specialized stock. Kiln-drying and seasoning courses are held each year at Vancouver and Ottawa.