

Physical Properties of Pinus radiata in Structural Sizes.—At the request of the State Advances Corporation a programme has been prepared for the measurement of the mechanical strength and elasticity of *Pinus radiata* in certain structural sizes used in domestic buildings. The project has been planned by a joint committee representing the State Advances Corporation, Housing Construction Department, State Forest Service, and the Department of Scientific and Industrial Research.

Ventilation of Building Cavities.—A problem outstanding from the dampness and mould in houses investigation is the question of the minimum ventilation rate allowable in the cavities of the walls of dwellings to keep structural timbers free from dry rot. Long-term observations are now in progress to discover the rates of drying of green timber when subject to very low ventilation rates with atmospheres at controlled relative humidities.

PLANT DISEASES DIVISION

Timber Preservation

Biological Evaluation of Toxicity of Preservatives.—(a) *Against Insects*: Toxicity tests against *Anobium punctatum* (common borer) were made with a number of chemicals and proprietary mixtures. Six have been recommended for use at prescribed strengths.

(b) *Against Fungi*: The first series of experimental fitches from the "graveyard" test plots was lifted and sticks measured for decay damage.

Treatment of Infested Buildings.—A technique which enables comparisons of insecticides applied to infested wood has now been evolved.

Preservative Treatment by Pressure.—Tests to measure effects of solution temperature on speed of absorption with several timbers have been completed. Sufficient information has now been secured on pressure treatment to form a basis upon which recommendations for commercial treatments can be made.

General.—During the year the Wood Technologist spent three months at the Division of Forest Products of the Council of Scientific and Industrial Research, Melbourne. The visit has already proved of excellent value in the New Zealand work.

DOMINION LABORATORY

Building-materials Section

Paint.—Exposure Tests on House Paints: A wide range of climatic conditions is now covered by the paint exposure fences. Practical results are commencing to come to hand.

Accelerated weathering tests have given valuable information and a second "weatherometer" is being obtained.

Cement-asbestos and Portland cement paints are undergoing tests.

Many routine analyses and tests of paints have been carried out mainly for the Housing Construction Department and the State Advances Corporation.

A small bi-monthly periodical, *Paint Review*, has been commenced to assist in the dissemination of information to the paint trade.

Building-materials.—Deterioration of Concrete: Concrete in a large irrigation dam was found to have been badly laid. A large amount of lime had been leached from the structure.

Experimental work has been commenced to investigate attack on concrete structures and underground pipes by aggressive waters.

The presence of sulphuretted hydrogen in a railway tunnel under construction was shown to be due to the presence of sulphate-reducing bacteria behind the concrete lining. Advice was given in the placing of new concrete rendered necessary in remedial work in the tunnel.

Concrete Roofing-tiles: Advice on colouring of tiles has enabled several manufacturers to improve their product.