

The average untreated life of these species varied from two to six years. Those posts which had received full-length treatments, resulting in satisfactory absorptions and penetrations, were found to be serviceable after an exposure period of twenty-six years. A detailed report on these tests has been prepared for publication, while the results of these tests have also been included in publications dealing with recommended practice for the preservation of fence-posts and farm timbers.

The experimental pressure impregnation plant 26 in. diameter by 8 ft. long was brought into operation at Rotorua during the year, and treatment schedules for the pressure impregnation of larch poles and posts were investigated. Pressure impregnation studies will be extended to cover all species of commercial significance, and will be of value in grouping the commercial timbers of New Zealand into permeability classes.

Testing of wood-preserved against marine-borer infestation was continued with the co-operation of the Auckland Harbour Board, and these tests have now progressed to a stage where some conclusions may be drawn from the results of the six years' exposure. These tests will be extended, using the facilities now available for treating timber under pressure.

Unfavourable conditions for air-drying large-dimension pine stock are frequently encountered in New Zealand, and where such conditions do exist it is impossible to air-dry pine poles without appreciable degrade due to decay. Means of overcoming this problem are now under investigation; it is thought that a light preservative treatment prior to seasoning will prove to be effective.

The wood-preservation section dealt with many requests for assistance or technical advice from industry, the public, and from Government Departments. Information leaflets on methods of sapstain prevention and on the preparation and use of toxic chemicals in organic solvents for the preservation of timber were frequently in demand.

(7) *Painting of Timber*.—The general conclusions previously reached regarding the usefulness of white-lead paints for application to insignis pine have been modified to a very minor degree by further experience. Current tests suggest that a bodied oil vehicle may be preferable to raw oil in the white-lead priming coat. It is of interest to note that the Western Pine Association of United States of America recommends white-lead pigment in all coats applied to *Pinus ponderosa*. Tests are not yet far enough advanced to indicate the effectiveness of the Western Pine knot-sealer applied under the priming coat, but on the basis of overseas experience it is recommended in preference to shellac knotting. This sealer is now available from a local paint-manufacturer.

Inspections of houses in course of erection have again drawn attention to the undesirable practice of allowing the priming coat on weatherboards to weather for periods of six to twelve months before an undercoat is applied. Insignis pine will not withstand this abuse. When the priming coat no longer provides protection to the timber, the boards cup and also check very badly (due to restraint to their swelling when the moisture content rises, and the consequent "compression shrinkage"). The cupping opens up gaps at the laps, and the checks cannot be adequately covered by subsequent painting. Hence with insignis pine the need for correct painting practice is even more essential than with heart timber of the indigenous species. The additional protection afforded by back-priming the weatherboards, provided that they are at the correct moisture content (between 15 per cent. and 18 per cent.) when primed, is advocated as good practice. The undercoat and finishing coat should be applied not longer than four weeks after priming.

Useful information will be obtained from the paint fence tests sponsored by the Inter-departmental Paint Committee, on which Forest Service officers are serving. The major part of the testing work is undertaken by the Dominion Laboratory, and the technical data published in the *Paint Review* and in mimeographed bulletins is filling a long-felt want.

(8) *Wood Chemistry*.—The most important work in progress is the study of the resin content of the more important exotic *Pinus* species from the viewpoint of their pulping properties. Heartwood content is a significant factor in much of the *P. radiata*