

with those obtained in previous tests using short lengths of timber, good absorptions and penetrations being secured. This method of preservation appears to have a practical application where it can be arranged for timber to be dipped immediately after withdrawal from the kiln, and, while the cost of preservative absorbed may be fairly high, handling costs could be kept to a minimum by mechanization of the dipping process.

88. *Painting of Wood*.—The Forest Service has co-operated with the Inter-departmental Paint Committee in its extended activities, which include erection of additional test fences at Westport and Alexandra, Central Otago (representing climatic extremes), inspection of panels on existing fences, and current problems relating to paints and painting technique.

No extension of Forest Service paint-testing on the Wallaceville fence will be made until a final report on the present panels is complete. Four years' exposure of the insignis-pine panels has shown that white lead in oils is still rated highest of the primers used. The resin knot-sealer developed by the Western Pine Association is being tested on sections of the insignis-pine weatherboarding used in recent additions to the State Forest Service Head Office buildings.

89. *Plywood Manufacture*.—A departmental report on a number of technical aspects is nearly complete. In a short paper, conversion of New Zealand logs into veneer and plywood is discussed and comparisons made with such scanty overseas figures as are available. It is concluded that, on an average, only one-third of the volume of the green log finds its way into the finished plywood; while this does not compare favourably with conversion by sawing, it must be recognized that plywood possesses the advantages of wide sheets, distributed strength, non-splitting qualities, and dimensional stability which make its use more economical. There is need, however, for closer utilization of small-sized sheets of veneer.

90. *Wood Chemistry*.—Resulting from research work by the Dominion Laboratory on the resins of white-pine, rimu, and minor *Dacrydium* species, a number of requests have been received from overseas for supplies of shake resin from white-pine and rimu and for wood or foliage of rimu. It has not been possible, however, to arrange for supply on a commercial scale, owing to lack of information on collection costs as related to the value of the finished products.

Tests of silica content of a number of specimens of beech species have been made by the Dominion Laboratory as part of an investigation by the Forest Service into the sawing difficulties associated with one or two species. The silica contents of black beech, mountain beech, and hard beech are high in many of the specimens examined. A brief note in the *New Zealand Journal of Forestry* has covered the initial tests.

A new series of tests of ether-soluble extractives from insignis pine is in progress, the actual extractions being made by the Dominion Laboratory. An earlier series of tests had shown considerable seasonal variation in resin content, and this was one aspect to be re-examined, together with zonal resin content from pith to bark at several height levels in trees from similar Kaingaroa Forest compartments; the trees are now five years older and show a higher proportion of heartwood. In the current series there has been considerable difficulty in defining accurately the outer limits of the true heartwood and it was necessary to use the benzidine method of differentiation. Outside the true heartwood, the resin content of which was recorded as high as 35 per cent. in one instance, but was usually 6 per cent. to 13 per cent. there is a dry zone, apparently intermediate in character and resin content, between the heartwood and sapwood. In the latter zone there is generally a consistent decrease in resin content towards the bark. Summer fellings show higher sapwood resin contents towards the tops of trees than do spring fellings, but in few instances do they exceed 2 per cent.