

86. *The Drying of Timber.*—Several new kiln units were inspected and assistance with schedules and measurements of circulation was given to operators.

Experimental lots of several eucalypts grown in the Whakarewarewa State Forest were kiln-dried with reasonably good results at the Waipa Mill after preliminary air seasoning.

Additions to the Waipa kiln installation now approaching completion will embody automatic ventilation. On one kiln such ventilation has already been provided and is working satisfactorily.

Data on the design of heated storage rooms for final conditioning of furniture stock have been supplied to manufacturers.

87. *Wood Preservation.*—Test specimens exposed to marine borer attack in Auckland Harbour were again examined during the year. After four years' exposure, creosoted control specimens of exotic species were still sound, although the incidence of teredo attack showed a slight advance on the previous year, whereas untreated control specimens of the same species were either completely destroyed or very severely attacked. It was also observed that where creosoted wood had been attacked the development of the teredo was retarded, the holes visible being much smaller than in untreated specimens. Of the untreated indigenous species (all heart timber) installed at the same time, kauri, miro, tawa, and taraire were either completely destroyed or severely damaged, but totara continued to show marked resistance to teredo attack, although extensive attack by *Limnoria*, which causes much less destruction, was evident. In 1945, additional indigenous species (untreated) containing both heartwood and sapwood were installed. These had been exposed for two and a quarter years when examined. Northern kauri was found to be completely destroyed, southern kauri severely attacked and practically destroyed, and northern and southern totara both slightly attacked, principally by *Limnoria*. After three and a quarter years' exposure, round bolts of tawa, taraire, and miro installed with bark intact were extensively attacked in places where the bark had become detached while in the water.

In 1941 a pontoon built of creosoted insignis-pine timber was launched for use as a landing-stage at the flying-boat base, Mechanic's Bay, Auckland. The pontoon, which is 50 ft. long by 20 ft. wide and 5 ft. deep, consists essentially of an interior trussed framework to which 2-in.-thick planking is spiked, with the bottom, sides, and ends covered with sheathing one inch thick. Except for turpentine corner pieces and hardwood bollards, all of the timber used was insignis pine and was prefabricated and creosoted at the Waipa Mill. After six years' service the pontoon was recently slipped for inspection and overhaul and the timber was found to be in excellent condition, being entirely free from decay and having suffered only minor attack by teredo. Teredo attack was observed at two places in the sheathing where it had been damaged by crushing, but the teredo holes were very small and the organisms had apparently died at an early stage. Had the customary northern totara sheathing been used, equivalent or greater damage by marine borers could have been expected.

Preliminary investigations have been made of the dipping of kiln-dried insignis-pine timber in an oil-solvent preservative immediately after withdrawal from the kiln and before appreciable cooling of the timber had occurred. The investigation so far has been confined to short lengths of five inch by one inch and four inch by two inch, with times of immersion varying from ten minutes to thirty minutes. Good absorptions and penetrations of preservative were obtained, and the work is now being extended to include 8 ft. lengths of timber. The preservative chemical used was pentachlorophenol, but analogous results may be anticipated for other preservatives in oil solutions.

88. *Painting of Woods.*—The need for service tests of paint coats for insignis pine is being emphasized by the increasing use of that timber for weatherboarding. A useful guide is provided by the Wallaceville paint test fence panels, on which lead primers and subsequent coats of standard type have been giving satisfactory service, provided that knot-sealers are applied over the priming coat. An extension to this test series is