Incorrect practices adopted in kiln-drying, however, have been brought to the attention of the State Forest Service on numerous occasions during the year, and the attention of all interested in the subject is again drawn to the fact that satisfactory results can be secured only if standard and well proven practices are adhered to. The subject has been dealt with in previous annual reports, which should be carefully perused by all interested. It is again emphasized that disastrous results may follow the drying of mixed qualities, thicknesses, and species of timber, and that separate drying of different qualities, thicknesses, and species is invariably recommended.

5. Grading.

The so-called "National Grading Rules for Building Timbers," which were originally formulated in 1928, were revised during the year in co-operation with the Dominion Federated Sawmillers' Association. As a result of experience gained since their inception it has been found necessary not only to improve some of the grades and better the description of others, but also to simplify the rules in general and amend the grade names to allow of their universal use in all timber-producing regions. It is confidently anticipated that the revision will have the desired effect of securing their adoption by the Standards Institute as a New Zealand standard specification, when they will become in fact as well as in name "The National Grading Rules for Building Timbers."

Standard grading rules for the marketing of white-pine were introduced in September, 1937, the basic consideration in the determination of grades being the percentage of usable box cuttings which each grade should produce. Very satisfactory results and a marked reduction in disputes between buyer and seller have occurred since the introduction of these rules, which it is anticipated will become a New Zealand standard specification within the near future.

Co-operation was continued with the New South Wales Forestry Commission in carrying out a study into the grading of New South Wales hardwood poles, cross-arms, sleepers, and general construction timbers for use in New Zealand. Further visits by officers of the Commonwealth were paid to New Zealand and conferences arranged with representatives of all important wood-using Departments and Power Boards, as a result of which a specification covering the supply of New South Wales desapped hardwood poles is ready for submission to the New Zealand Standards Institute as a New Zealand standard specification. Similar specifications covering other New South Wales hardwood products will become available during the ensuing year.

6. Wood Preservation.

The past year, like those immediately preceding, has reflected an ever-increasing scarcity of naturally durable woods whether for constructional timbers, for railway-sleepers, for poles, or for fencing-material. The demand for fencing-posts, in particular, has been exceptionally heavy during the last two years, so much so that the concrete post has made some headway, but it is anticipated that as soon as large quantities of creosoted material are available from the treating-plants at Rotorua, Hanmer Springs, and Conical Hills the wooden post will regain this lost ground.

For the production of creosoted poles, larch and Australian eucalypts will be largely employed, and various studies instituted during the year may make these even more valuable than they have already proved. Both have proved somewhat difficult to treat, and, in comparison with the imported Australian hardwood pole, have suffered hitherto from the fact that they split rather badly during seasoning and must be of liberal dimensions accordingly. A preliminary full length salt-seasoning treatment immediately after felling promises to virtually eliminate splitting, while a similar butt-creosoting treatment promises to increase the penetration and absorption of the creosote in the most vulnerable portion of the pole.

Wastages and losses due to sap stain and mould were unusually large during the year, particularly in white-pine shipped from the West Coast of the South Island to the North Island butter-box factories. Open piling and avoidance of block stacking except for very short periods is essential with this timber during warm humid weather. The same comment applies to the exotic-pine timbers, the sap staining of which is so prevalent as to prejudice most consumers against its use for anything but low-grade containers and temporary construction work, &c. For this reason in all State Forest Service sawmills provision is being made either for dry kilns or for dipping treatments, or for both, so that consumers may be assured of receiving clear bright stock free of sap stain and mould.

Unnecessary alarm over the insect attack of timber continues to be expressed from time to time and is responsible for much illogical use of timber, to such an extent in fact that it is having a serious and far-reaching effect upon the marketing of all building timbers. Users fail to realize that in most cases the attacks have been due wholly to wrongful design, to lack of maintenance, or to some other avoidable cause, and that merely specifying heart rimu or so-called "borer-treated" flooring and weather boarding in place of rimu will not achieve the desired result of furnishing an insect-proof or insect-free structure. Only by the adoption of proven designs and constructional details of an adequate standard of supervision during erection and of regular inspection and maintenance during use may a wooden structure be expected to give that fifty to one hundred years of life which may reasonably be anticipated.

7. Miscellaneous.

The large-scale commercial shipments to Great Britain of butter packed in rimu boxes confirmed the results of the earlier small-scale tests. The rimu proves to be as non-tainting as, if not more so than, white-pine, but does not nail as easily as the softer wood, and further experiments must be instituted to determine the best type of box-construction for this timber.

During the year arrangements were concluded for the local production of clothes-pegs from tawa, and investigations initiated into the suitability of mountain-beech for a variety of turnery products.