Recognition of Suggested Improvements in Methods.

Funds were set aside during the period under review for the purpose of providing monetary recognition for improvements suggested by officers and employees in practice, technique, methods, &c.—either in the office or field—which have resulted, or will result, in economies and greater efficiency in State Forest Service operations; and also for improvements in machinery or equipment of any kind which has resulted, or will result, in monetary savings or increased efficiency. Nineteen applications were considered by the departmental committee appointed for this purpose, and the following improvements were considered worthy of recognition:—

(1) Tables to facilitate topographical-survey work in indigenous forests and plantations: Ranger J. B. Watt, Rotorua.
(2) Improved wrenching-machine: Ranger W. M. Menzies, Rotorua.
(3) (*a*) Improved seed-sowing adze, (*b*) reinforcement of disk harrows: Blacksmith Alex. Munro, Rotorua.

7. Forest Economy.

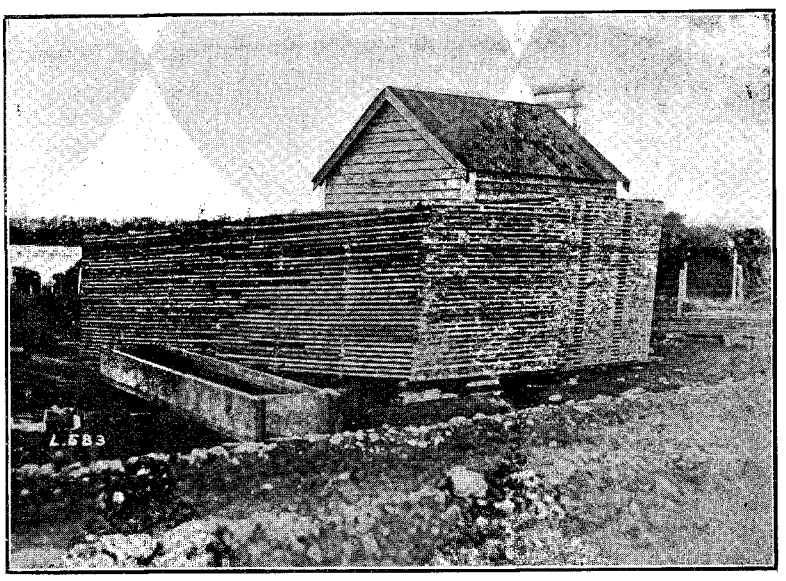
Forest-products Investigation.

The wide range of forest-product studies can be gauged by the mention of a few typical results. The completion of the strength tests on green and air-dry material of four species of native and exotic woods, including matai, black-beech, Douglas fir, and redwood, has advanced the testing programme of the Forest Service to such a point that a manual of mechanical and physical properties of New-Zealand-grown woods will be printed during the current year. The adoption of international testing methods for this work makes the manual a companion volume to similar publications issued by the United States of America, Canada, and India, thus enabling accurate comparisons to be made between the timbers of these four countries. It is further possible, as a result of the work, to predict within close limits the mechanical and physical properties of woods, based upon determinations of specific gravity and of structural composition. Strength tests, also made on manuka, ironbark, and hickory demonstrated the superiority of the native manuka for spokes. The butter-box tests initiated in 1925 were continued, and a new type of box, economizing the supplies of non-tainting timbers, was passed as suitable for the export trade. The export cheese-crate was also redesigned as a result of further study in the Forest Service box laboratory.

Further data on improved air-seasoning practices were published during the year, and experimental stacks, using more efficient methods of construction, were established in various parts of the country. The installation of the proposed experimental dry kiln awaits the return of the Engineer in Forest Products, who is studying abroad the types most suitable for New Zealand use. The study of shrinkage in wood and of microscopic structure is fundamental to all wood-drying practices, and continued progress in both studies is recorded. A study to determine the possibilities of conditioning and floating logs of various native species has also been commenced.

Suitable open-tank preservative treatments with creosote for twenty-eight species of native and exotic timbers were developed. Prevention of sap-stain in kahikatea, also, is being studied under commercial conditions. The results to date are encouraging, the treatment being inexpensive and its efficiency promising. The annual saving possible by the successful completion of this study alone amounts to over £10,000.

Further progress is recorded in insect and decay problems, valuable assistance being given by the Government Entomologist, whose surveys enable the Forest Service to adequately control any dangerous timber and forest insects. A survey of the timber and allied industries was completed during the year, and a statistical and economic survey of the use of sap and O.B. grades commenced.



Sap-stain Investigations: Method of stacking Timber after Treatment.