

As an integral part of the current study of mountain-beech timber from western Southland, tests are being made of shrinkage and specific gravity on material from the five strength-test trees and an additional five trees to indicate variation with site. The basic specific gravity for C. and D. bolts of the five test trees is 0.514, this figure being in fairly close agreement with the average basic specific gravity of 0.498 obtained from butt and merchantable top sections of six trees. Very high shrinkages occurring in some test material were indicative of the refractory nature of heartwood, which tends to "collapse" in seasoning.

In conjunction with the study of resin content in trees from insignis-pine compartments in Kaingaroa forest, a study of the wood itself was also undertaken. Most of the material came from one compartment of twenty-three-year-old trees. The mean basic specific gravity for thirty-six trees from this compartment was 0.373; individual means for the several crown classes were: dominant, 0.367; co-dominant, 0.363; intermediate, 0.383; suppressed, 0.386.

It has been shown that the presence of low-density core wood in insignis pine is not necessarily indicative of high longitudinal shrinkage. This latter feature is noted especially in butt logs in dominant and co-dominant trees, whereas low-density corewood occurs at all heights in these crown classes, being disguised by infiltrates at the butt. The light corewood is found only in top logs in intermediate and suppressed trees.

Trees of *Pinus patula* were also studied in connection with resin-content work. The average basic specific gravity for four thirty-seven-year-old trees from Whakarewarewa was 0.386 (co-dominants, 0.402; suppressed, 0.370); material from three sixteen-year-old trees from Kaingaroa contained no heartwood and had a mean specific gravity of 0.336.

Studies of heartwood content of several species were made in conjunction with volume-table work at Rotorua. Douglas fir and insignis pine are notable for their early development of heartwood, while Corsican pine and ponderosa pine in forty-year-old stands carry a very small proportion of heartwood.

Interim results are reported from chemical poisoning experiments designed to retain the easy barking characteristics of spring and early summer fellings by killing the trees during these seasons. Sodium arsenite as a flour paste was applied after ring-barking. European larch trees felled four months after treatment were barked more easily than the controls. Experience was less favourable with Corsican pine, as parts of many trees remained green, and the killed parts were affected by sapstain and insect attack. In another study concerned with living trees, the practicability of sapwood penetration with chemicals is being investigated with the object of rendering tawa sapwood immune from *Lyctus* attack during and after seasoning.

(5) *Drying of Timber*.—It has been necessary to emphasize to users and producers of insignis pine timber that extreme care must be used in seasoning this timber and in storage after drying. The need for anti-sapstain dipping has been recognized in the export trade; and the Forest Service suggestion that local users should insist upon freedom from excessive sapstain in timbers for building has resulted in greater attention to this problem. A cyclostyled note, "Prevention of Sapstain," has been widely distributed, and it will be available shortly as a printed information leaflet. There is also a need for an information leaflet on all aspects of seasoning and after-care required with insignis pine for building purposes, and a suitable leaflet has already been completed for publication.

In the field of kiln drying, assistance has been given to kiln operators in the provision of schedules, in kiln testing, and in the training of operators. A small laboratory kiln to dry lengths up to 6 ft. has been completed, and initial tests are in progress at Waipa. This kiln will be used for the development of kiln schedules for the more troublesome indigenous and exotic timbers.

The accelerated drying of tawa blocks for subsequent turning into shoe-lasts was the subject of a small-scale study. Tawa logs were cut into last blank lengths, split "along the quarter" into sectors, and kiln-dried. Even using chemicals to minimize