

twenty years old or more in the Kaingaroa Forest. Material selected from the several crown classes, and cut at the butt, 4 in. top, and intermediate heights, was divided into sapwood, heartwood, and intermediate zones for detailed examination. Ether-soluble content determinations were made by the Dominion Laboratory on several hundred samples; and the Laboratory is also making a more minute examination of larger quantities of resin extracted from a log of *P. radiata* to determine the chemical and physical properties of the resin constituents. Some conclusions drawn from the ether-soluble determinations are:—

- (a) Resin content in suppressed trees is higher than in other crown classes—*e.g.*, in the bolts taken from material 6 in. diameter down to 4 in. diameter the content in suppressed trees is 1·4 per cent., as compared with 0·9 per cent. in dominants and co-dominants. This is largely accounted for by the heartwood contents:—

At 4 in. diameter: Suppressed, 8 per cent.; other classes, 0 per cent.

At 6 in. diameter: Suppressed, 13 per cent.; other classes, less than 1 per cent.

At 8 in. diameter: Suppressed, 10 per cent.; dominants, 1·6 per cent.

- (b) Seasonal-variation figures for butt sections show highest resin contents in the spring, for 10 in. and 7 in. diameters highest in autumn to winter, for 6 in. and 4 in. diameters slightly higher in spring than in autumn.
- (c) Mean annual resin content for all crown classes, 1·6 per cent., which is also the seasonal mean.

Exploratory tests of resin content using solvents other than ether are in progress on *P. radiata* samples. This Service has made a few ether-soluble determinations on *P. patula*, whose low resin content is of interest—0·6 per cent. in thirty-seven-year-old trees from Whakarewarewa, but 1·7 per cent. in sixteen-year-old Kaingaroa trees.

Tests of silica content in mountain beech confirm previously published data. The timber from western Southland has a silica-in-ash content varying from 12 per cent. to 80 per cent. At the top of the merchantable bole the content is higher than at the butt; sapwood also has a higher content than hardwood.

An investigation of the substances in the heartwood of a wide range of durable coniferous timbers, including the more important New Zealand species, is being made in Sweden at present. Other wood chemical investigations are being made in Switzerland (*Dacrydium* spp.) and in England (puriri wood) on New Zealand timbers.

(9) *Plywood and Related Products.*—Investigations by British Commonwealth countries on the range of problems covered by this heading will be better co-ordinated by the Corresponding Committee set up as the result of discussions at the 1947 Empire Forestry Conference.

In the absence of equipment for laboratory investigations of plywood and glues, the principal matters calling for comment are in the industrial field. During the past year the results of a study of conversion losses in plywood-manufacture undertaken by the Forest Service were published in the *Empire Forestry Review*. It was also worthy of mention that the very considerable merits of insignis pine for rotary peeling are beginning to be appreciated. It is being used to an increasing extent for cores and cross-banding of thick plywood with high-class faces and backs.

From observations made in the United States of America, the application of high frequency to the edge-gluing of the component pieces of sawn timber used for cores of wide assemblies (such as counter tops) has a great deal of merit.

A local firm was assisted in the drying of $\frac{1}{8}$ in. thick, rotary-cut insignis pine veneer, a standard type of timber-drying kiln being used, with crude trays for the veneer sheets. Green veneer was dried down to 11 per cent. moisture content in seven hours. The broad latewood zones in some sheets are apparently slower drying than the lighter-coloured wood.