

defects, such as intergrown knots, should be admitted; hence it would be at least logical to relax the specifications governing the use of indigenous timbers for similar finishing purposes. All rimu and matai suitable for machining into flooring and weatherboarding should be rigidly excluded from the building grades in order to offset as far as possible the deficiency in dressing grades. There is, of course, no suggestion that all Building A rimu is suitable for finishing lines, but a considerable proportion undoubtedly is; and suitable relaxation as regards defects admissible in the machined products will achieve the desired objective.

During the past year the grades of insignis pine intended for machining were published as Amendment No. 3 to the National Grading Rules (New Zealand Standard Specification 169). Specifications for the machined products will also be issued by the Standards Institute in the near future. In Amendment No. 3, two grades, "Finishing Grade" for machining into interior finish woodwork, and "Dressing Grade" for machining into flooring and weatherboarding up to and including 6 in. wide, and other dressing lines, were provided for. The percentage of sawn output which measures up to these grades is very small and consequently can make only a relatively small contribution to building needs.

A technical officer attending a conference in the United States visited a number of large sash, door, and millwork plants where the principal timber used is western yellow pine (*P. ponderosa*) in Shop and Factory grades. It has previously been pointed out that this timber has many basic properties similar to those of *P. radiata* grown in New Zealand. The Nos. 1, 2, and 3 Shop grades of *P. ponderosa* are required by definition to yield stated percentages of Door "cuttings," including the whole range of small sizes, but with particular emphasis upon a minimum yield of the 6 ft. 8 in. or longer door stiles and the wide bottom rails. It is not inferred that *P. radiata* as grown in New Zealand will yield grades directly comparable with these Shop grades from virgin growth *P. ponderosa*, but a similar approach to the formulation of "cuttings" grades for the more important factory uses in New Zealand is logical.

Current work on grading of insignis pine is concerned with the development of grades for export, factory grades, and structural grades. A comprehensive study of inter-nodal lengths—i.e., distance between whorls of knots—in insignis pine logs has provided useful information as a basis for grading and the utilization of short lengths.

(3) *Timber Mechanics*.—One of the few important indigenous timbers which had not been included in the strength test series is mountain beech (*Nothofagus cliffortioides*). Recent botanical studies in western Southland, however, have shown this species to be of considerable potential significance and material for strength tests was obtained from five trees representative of the excellent type of mountain beech growing in that region. The tests of green material have not yet been completed, but preliminary results show that the density to strength relationship is very good. Tentative results for all the bolts from one tree show the following:—

Static Bending.		Mountain Beech.	Red Beech.	Silver Beech (Southland).
Modulus of rupture (pounds per square inch)	..	8,600	9,070	7,570
Modulus of elasticity (pounds per square inch)	..	1,300,000	1,720,000	1,280,000
Toughness (inch-pounds)		172	(Tests incomplete)	

In density the timber is intermediate between Southland silver beech and red beech. On the basis of toughness tests and figures for "work in bending to total load," the wood is very tough.

Air-dry material from C and D bolts of five *Pinus radiata* trees from Rotorua previously tested was tested after six years in dry storage. Slight changes to some strength properties have been recorded.