TECHNICAL NOTES

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WAGON AND IMPLEMENT POLES OF PINE AND FIR

In the manufacture of wagon and implement poles, white oak and white ash have, in late years, been supplemented to a considerable extent by both Douglas fir and southern yellow pine[1]. Poles for farm wagons and the heavier implements, of course, require somewhat greater strength than poles for other implements; consequently, dense southern yellow pine or dense Douglas fir[2] would be expected to give better satisfaction than material of sound grade. Sound grade material of either species should prove satisfactory for poles of the lighter farm implements where maximum strength is not of as great importance as in the heavier ones. The mountain type of Douglas fir is less dense and considerably inferior to the coast type in strength properties.

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[1] To avoid the confusion which frequently results from attempts to classify southern yellow pine into longleaf, shortleaf, loblolly, etc., a rule known to the trade as the "density rule" classifies all southern pine timbers irrespective of botanical species by means of proportion of summerwood and rate of growth. The essential feature is that "dense southern yellow pine shall show on either end of the stick an average of at least six annual rings per inch and at least one-third summerwood". "Wide-ringed material excluded by this rule will be acceptable provided that the amount of summerwood shall be at least one-half". "Sound southern yellow pine shall include pieces of southern pine without any ring or summerwood requirement". The full definition which was proposed by the Forest Service is given in the standards of the American Society for Testing Materials, a reprint of which may be obtained from the Southern Pine Association, New Orleans, La.

[2] Rules for the classification of Douglas fir into "dense" and "sound" grades have not yet been officially adopted. Summerwood is not so good a criterion of density and strength as is southern pine but the application to Douglas fir of the rule for southern pine will insure a superior grade of fir.

Mechanical tests made some years ago by the Forest Products Laboratory of the U. S. Forest Service, Madison, Wisconsin, on 10 each of southern yellow pine and Douglas fir wagon poles indicated in a general way that there was little difference between the pine and the fir poles for most of the quantities measured. The range of results, however, was much greater in the pine than in the fir poles, indicating less variation of stock in fir. The pine poles were inferior to the fir in stiffness, but had greater shock-resisting ability. The pine withstood a greater average maximum load and corresponding deflection than the fir.

Dense or sound grade in either Douglas fir or southern pine is less variable than these species taken as a whole and if material thus graded is used the wider range of quality in the pine will be less evident than in the tests mentioned above.

In contrast to Douglas fir, the greater shock-resisting value of the southern pine makes it somewhat less likely to break under the severe whipping and jerking to which many poles are subjected. On account of its greater hardness, southern pine is less likely to crush and wear at the fittings and bolts. Well selected southern yellow pine is undoubtedly superior to Douglas fir for poles which are subjected to severe usage.