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Bulletin 22. Revised 1956.

Western Australia

FORESTS DEPARTMENT

KARRI

PREPARED UNDER THE DIRECTION OF

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KARRI

(Eucalyptus Diversicolor)

THE MATURE TREE

Karri is the largest tree in the Western Australian forests, and is second only to Jarrah in importance. It ranks among the tallest of the Eucalypts, and trees over 200 feet high with a breast-high diameter of eight to 10 feet and a clear log length of up to 120 feet are common. There are many to be found of greater height, and some years ago a Karri was measured which had attained a height of 278 feet. One of the finest specimens of the species, felled at Karridale, had the following dimensions:—

34 feet in circumference at three feet from the ground.

160 feet to the first limb.

14 feet in circumference at the first limb.

Over 200 feet in total height.

From these figures it can be shown that the bole of this tree from the bottom to the first limb contained nearly 7,500 cubic feet of timber, weighting over 230 tons.

DISTRIBUTION

The forests of Karri occur as pure forests in the higher rainfall regions of the South-West of the State, in the vicinity of the Southern Ocean. The northern limit of the species is Nannup and the upper water of the Donnelly, whence it spreads south-eastwards to Denmark. There is then a gap in the belt, and it is to be met with once more near the Porongorup Range. Another isolated patch occurs on the extreme south-west near Cape Leeuwin. The prime forest extends over an area of approximately 500,000 acres, practically the whole of which has been dedicated as State Forest.

THE TIMBER

Karri is a hardwood, varying from almost white to reddish-brown in colour when first cut, but with seasoning and with age the colour darkens and the reddish-brown tint is always present. Jarrah and Karri timbers are very similar in appearance, and it is often difficult to differentiate between the two. The usual test is to burn a splinter of the wood and note the result. Jarrah burns to a black charcoal, but with Karri the red-hot coal continues to glow until a true white ash is produced. It should be noted that this test should only be applied to sound heartwood, as Jarrah heartwood which has been exposed to weathering conditions and Jarrah sapwood both give a white ash. In many cases Karri, when burning, gives off a very distinctive odour of garlic (similar to the "arsenic" odour), and this odour has never yet been detected with Jarrah. Arrangements may be made to have timber inspections carried out by the Forests Department, in which case the timber is guaranteed true to name. The habitat and milling of Jarrah and Karri in Western Australia are so separated that there is little chance of any mixing or confusion taking place prior to shipment.

The chief physical and mechanical properties of Karri are as follows:—

Density:

Green, 72 lb. per cubic foot.

Dry (at 12 per cent. moisture), 58 lb. per cubic foot.

Transverse Strength (Beams 20 sq. in. cross section at 12 per cent. moisture):—

Modulus of Rupture, 17,300 lb. per square inch.

Modulus of Elasticity, 2,680,000 lb. per square inch.

GENERAL USES

The uses of Karri are numerous. The strength and stiffness of the timber, combined with the extraordinarily long, clean lengths which may be obtained, render it unsurpassable for superstructural work, and it is not surprising to learn that, of recent years, the name "Karri, the Beam Timber," has been applied to this wood. It is possible to secure Karri in larger sections and longer lengths than any other known hardwood. In beams, rafters, columns, warehouse floor joists, and other members, where strength is the essential factor, Karri gives every satisfaction. It may be mentioned that, in one of the mills in the Karri Forest, the roof is carried by two trusses with a common tie beam consisting of a piece of 12in. by 12in. Karri 80 feet in length. In many instances Karri has replaced Oregon for scaffolding planks, where its greater strength has more than offset the increase in weight. In bridge construction it is used for half caps and decking. The timber makes very satisfactory transmission line cross-arms, and is also used to a considerable extent for coach, wagon and motor body building. As a good bending timber it is used extensively for the roof sticks of railway carriages and for the wheel rims of agricultural machinery. In the latter case the rim is built up of two halves of bent Karri necessitating a bend through 180 degrees.

Karri is extensively used in the gold mines of Western Australia for many purposes. Large quantities have been exported to Johannesburg where its use is particularly favoured as guides or sliding beams. Reports have shown that, under conditions of heavy wear, it has a much longer life for this purpose than pitch pine and other timbers previously tested.

Karri timber really came into its own in Western Australia during and after World War II. Although recognised as a superb structural timber of great strength and available in large dimensions, it did not rank high in favour in Western Australia because of its lack of durability without preservative treatment. The State had been thoroughly spoilt by abundant supplies of such durable woods as Jarrah and Wandoo.

With diminution in supplies of Jarrah, Karri is finding much wider use within the State for general structural purposes. Some three-quarter million fruit cases are produced annually to carry the apple crop to England. In 1944, the plywood industry was established in this State using selected Karri logs and Karri remains the main source of peeler logs within Western Australia.

A considerable quantity of sawn Karri is exported to the Commonwealth for sleepers and railway purposes and to Adelaide and Melbourne markets for building, motor body construction, etc.

The timber has been pulped successfully on an experimental scale and as early as 1923 a paper was produced from a mixture of 70 per cent. Karri pulp and 30 per cent. imported sulphite pulp.

Karri has also been used for wine vat and cask manufacture and for the manufacture of wood pipe.

USE IN SHIPBUILDING

Karri is on Lloyd's list of shipbuilding timbers, and, before the days of steamships, vessels built wholly of Karri were constructed in Western Australia. At Hamelin Harbour, from which the produce of the early Karridale sawmills was exported, quite a fleet of large lighters, built entirely of Karri, was employed. In shipbuilding nowadays, the wood is used largely for keelsons, and the long lengths obtainable are regarded by shipbuilders as an added advantage for this work.

KILN SEASONING

Karri can be kiln-dried to a high-grade product. Kiln-dried Karri boards undoubtedly make an excellent floor, for they take a high polish, and produce a surface greatly resistant to indentations and to wear. For furnishing also, the timber is well suited, since it has a rich colour, particularly when kiln-dried, and an attractive figure. Suitable drying schedules for all sizes of Karri have been developed as a result of tests at the Forest Department's experimental kilns.

DURABILITY

Karri is not a durable timber when a comparison is made with many other Eucalypts such as Jarrah and Wandoo. It is readily attacked by most Australian wood-eating termites and if not protected, cannot be used safely in areas where there is any degree of hazard. Under conditions favourable to decay, untreated Karri has a fairly short life, and in this regard, is probably not much better than untreated Douglas Fir heartwood.

Lack of durability is of minor importance for water flumes and is often not a real problem with rail sleepers set on stone ballast in tracks which are frequently used. Karri sleepers, under such conditions, have proved quite satisfactory in Western Australia and the Transcontinental lines.

REFORESTATION

After the removal of logs for sawmilling from the virgin Karri forest, a new crop of seedlings is established by natural regeneration. Following silvicultural treatment on these lines, cut-over areas in a comparatively few years carry a healthy crop of saplings, which grow very rapidly under the favourable climatic conditions of the Karri forest regions. Regenerated areas are surrounded by firelines, and thinning operations are carried out as the new crop develops.

Although much of the Karri forest cut over in pre-war years has been taken for settlement and converted into farms, the whole of the good-quality forest remaining has now been dedicated as State Forest. Fire-control measures have been organised extending over the virgin and regenerated forest and, in consequence, continuity of supplies is assured for all time.

139/10/56—5m. By Authority: WILLIAM H. WYATT, Government Printer, Perth.