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WESTERN AUSTRALIA AS A PRODUCER OF FINE TIMBER.

By C. E. LANE POOLE.

THE British Empire Forestry Conference of 1920 was happily inspired when it suggested the formation of an Empire Forestry Association. Forestry experts all the world over clearly recognize that their efforts must fail of the most fruitful results, if they are not supported by a sympathetic and enlightened public opinion on the great matter of forest conservation. The experts themselves can do a great deal, but from the nature of the position which they occupy they are debarred to a very large extent from making that close and continuous appeal to the public which is essential for the full success of their efforts. The making of this appeal rightly belongs to such organizations as the Empire Forestry Association. Under the Southern Cross societies of a similar nature have done yeoman work on behalf of the forests. It is only within quite recent years that forestry in Australia and New Zealand has become a subject for public discussion. The immense forest wealth with which both the Commonwealth and the Dominion have been dowered, and the readiness with which timber of local growth could be obtained for every purpose, had the effect of engendering in the minds of a great section of the public the idea that the forest wealth of the country was inexhaustible, and this unfortunate and erroneous belief was fostered by the readiness with which those in authority alienated vast tracts of heavily-timbered land for agricultural or pastoral purposes. Settlement in Australia and New Zealand, in short, has been accompanied by a tremendous wastage of forests. The object of the settlers in every case was to get rid of the timber in the quickest possible way, so that the land on which fine timber had grown might be available for crops. It can readily be understood, therefore, how there arose in the popular

mind a belief that timber was of no value, and was indeed an excrescence on the face of nature and a hindrance to farming.

The Australian Forest League and kindred Associations have done a good deal in the way of correcting popular misapprehension on the subject of forestry ; but the ingrained prejudice of generations is hard to eradicate, and in many quarters still—and in quarters too where one might reasonably look for enlightenment—there is a good deal of apathy on the subject, and efforts to improve forestry conditions are often looked upon with little favour. If the Empire Association assists in dispelling the cloud of prejudice and misunderstanding that still hangs over forestry affairs in Australia, it will have earned the gratitude of all lovers of forests and of everyone who is able to recognize the serious nature of the economic questions involved. In no State of the Commonwealth do more valuable forests of the finest hard woods exist than in Western Australia ; in no State has exploitation proceeded at a more rapid rate, and in none until within very recent years has less been done to repair the damage. The part which the forests of Western Australia have played in the country's development is unique among the States of the Commonwealth. It may be justly asserted that early settlement was made possible only because of the existence of great forests of prime timbers. In 1829 when the pioneer settlers landed at the Swan River, they found themselves in a thick forest which grew close to the seashore and along the banks of the rivers. There were no open grass lands that called merely for the labour of ploughing and sowing. Every acre to be cultivated had to be won from the forests. The forests, too, provided timber for house building and for numerous other purposes. The early settlers were none of them wealthy, and the abundance of magnificent timber at hand seems to have suggested the idea of export to the Mother Country. The earliest official record of the export of timber dates from 1836 ; but from other sources of information it is clear that specimens of the timbers found in their new home were sent to England by the pioneers within a couple of years of their first landing. In those early days the word "jarrah" as applied to the State's principal timber was



HAULING A JARRAH LOG IN WESTERN AUSTRALIA BY MEANS OF A "WHIM" AND TEAM OF HORSES.
(The wheels of the "whim" are sometimes over 11 feet in diameter, and the logs vary in weight from 5 to 25 tons.)

unknown. The first settlers, struck by the similarity of the timber they found in their new home to the product of the West Indies, called it "mahogany." It was almost a generation later before the native name for the tree, "jarrah," came to be applied.

The export of timber was a ready means of obtaining money, while land was being cleared and cropped, and the business of exportation once begun was never abandoned. Indeed, it has proceeded steadily ever since, and Western Australia remains to-day, as it was three quarters of a century ago, the great timber-exporting State of the Commonwealth.

Early estimates of the extent of the forests of jarrah were remarkable for their liberality, and it is very evident that these estimates included the vast areas of sclerophyllous woodlands, which cannot rightly be termed "forest," and, as these estimates were made at a time when exploration was singularly tentative and incomplete, their unreliability becomes all the more apparent. It was not until the closing decade of the nineteenth century that some effort was made to ascertain the extent of the forest areas. Mr. Ednie Browne, Conservator of Forests, discusses the matter in his report of 1896, and estimates the total area of forest country at 20,400,000 acres.

These figures include a considerable area of country which cannot be designated as "merchantable forest." But in the quarter of a century that has passed since these figures were published, a thorough survey of our forest estate has been made, and this has shown that at the most we never possessed more than 3,000,000 acres of first-class milling timber. The timbers in regard to which conversion has been most systematically carried out are jarrah and karri. These have been milled regularly for a generation, and to-day there are eighty mills cutting them. The forest survey shows the areas covered by these two timbers as comprising, roughly, 2,500,000 acres for jarrah and 250,000 for karri. The heavy conversion by saw millers has been allowed to continue with little or no restriction, with the result that the whole of the prime jarrah belt is now held under saw-milling tenure, and it can only be a matter of a decade or so before we see the last of the virgin jarrah forests.

Besides jarrah and karri, the main export timbers, there are two other valuable woods which are used locally for the construction of railway rolling-stock and for wheelwright work. These are tuart and wandoo.

Tuart, according to the early figures, covers 200,000 acres. This would certainly seem to be an over-statement, for tuart is rigidly confined to a narrow limestone belt running for some distance in from the coast, and at no time would there appear to have been so large an area occupied by this tree. At the present day prime tuart country under the control of the Crown measures slightly more than 5,000 acres, and part of this area consists of land that has been alienated but has been repurchased, in order that it may be reforested. The export of tuart grown on Crown lands is now prohibited. This prohibition, of course, does not apply to timber grown on alienated land. In regard to jarrah, karri and tuart, the forests department is vigorously pushing on schemes for regeneration and reforestation.

Wandoo is found over a very large region, but with the exception of an area so small as to be negligible, it nowhere assumes the quality of a forest. It is a valuable timber and has not been exploited owing to the abundance hitherto of jarrah and karri. It is likely, however, that, with the gradual decrease of the existing supplies of the two last-named timbers, wandoo will receive more attention in the future than it has in the past, and will continue to receive that attention until the reforestation work in the main forests has borne fruit.

Jarrah and karri are well known to timber experts in Great Britain, but the wide range of their usefulness has not yet received the appreciation which it deserves. It is unfortunate that in the past the principal uses found for these timbers in Great Britain have been as paving blocks, railway sleepers, and, to a lesser degree, the manufacture of railway rolling stock. Yet both these timbers are worthy of use for products of higher grade. The Empire Timber Exhibition of 1920 contained many examples of the highest class of furniture and decorative work in jarrah and karri, particularly the former. It is in these directions that British appreciation should manifest itself. There is no finer furniture timber in existence than jarrah, and one has no difficulty in understanding

why the early settlers called it "mahogany." It possesses all the richness in colour of the Honduras product, it takes a very high polish, and its durability is equalled by few woods grown in or out of the Empire. Its main physical properties indicate beyond question its eminent suitability for building construction. These properties may be tabulated thus :—

Weight per cubic foot (green) ...	68 lb.
At 12 per cent. moisture ...	55 "
Transverse strength	15,000 ,, per sq. inch
Tensile strength	15,500 ,, " "

It is not absolutely resistant to white ant when in the ground, but it possesses a higher degree of immunity than do most timbers. Indeed its remarkable durability has earned for it in South Africa, to which it is largely exported, the name of "everlasting" wood.

Karri has all the qualities of jarrah and is somewhat heavier, and it is capable of serving all the purposes for which jarrah may be used. But it is not durable in or on the ground. The physical properties of karri are as follows :—

Weight per cubic foot (green) ...	72 lb.
At 12 per cent. moisture ...	58 "
Transverse strength	17,300 ,, per sq. inch
Tensile strength	18,750 ,, " "

Both these trees—in particular karri—are capable from their size of producing lengths and sections of unusual dimensions, and in the country of their origin and elsewhere they compete with iron and steel in building construction. It is upon jarrah and karri that the reputation of Western Australia as a producer of the primest hard woods depends, and it is the object of the operations of the Forests Department to uphold that reputation in permanency.

The great forests of Western Australia lie in the southwestern portion of the State, between about 31° 30' south latitude southward to the Southern Ocean and from the Indian Ocean eastward to about 119° east longitude. It is from the region named that the whole of the timber exported has been drawn, as well as the vast bulk of that used locally. Outside these limits also

there is abundance of timber, but nowhere is it found in quantities deserving of the name of "forest." Sandalwood, for instance, is a timber which at one time was abundant in the prime forest region, but it has long ago been cut out : and the export supplies, as well as those used locally for the manufacture of sandalwood oil, come from districts lying from 400 to 500 miles eastward of the capital and from that division in the north-west of the State known as Gascoyne. For the last ten years the average export of this valuable timber has exceeded 6,000 tons per annum, almost the whole of it being absorbed by the Chinese market. The sandalwood oil industry has received recognition within this State by the reservation of an area of 75,000 square miles in the Gascoyne division, where the wood can only be cut for the manufacture of oil within the State.

Western Australia is one of the great gold-producing countries of the world, and its status in this respect is very largely due to the fact that in the auriferous regions there is abundance of timber for all mining purposes. Indeed it is this wealth of timber that has contributed more than anything else towards the development of the great gold industry. The timbers represented are eucalyptus, casuarinas and acacias, and the latter come under the vernacular name of "mulga." None of the trees reach the dimensions of their affinities in the south-west portion of the State, although here and there wandoo of fairly representative size is to be met. The great gold mines on the "Golden Mile" near Kalgoorlie, the chief centre of the Eastern Goldfields, at the time they were opened out, drew their supplies of timber from their own immediate neighbourhood, but such supplies have long been exhausted, and to-day tramways run into the "mulga" for 100 miles or so on each side of the centre, and from the end of these spur lines firewood is drawn to the mines. It is estimated that half-a-million tons of timber per annum are used as fuel and for other purposes on the gold mines of Western Australia.

In that vast portion of the State north of the 32nd parallel of south latitude, there are to be found many varieties of fine timber, but nowhere apparently does it exist except in savannah form. No adequate forest survey of this part of the State has yet been made, nor has there

been any effort towards exploitation, except by settlers for their own requirements. Cypress pine, a wood with many fine qualities, exists in the north and north-west, but the extent of the area covered by it has yet to be determined. In so vast an area as that of Western Australia (975,000 square miles), with climatic conditions varying from the tropical to the temperate, and a rainfall ranging from a very few inches to 40 inches or more, sharp contrasts, incongruities and apparent anachronisms in forest contents occasion no surprise. Within the borders of the State are to be found survivals from remote geological time, as well as the highly developed species of more recent ages as represented by the eucalyptus, the acacias and other families. Such curious growths of the south-west as the blackboy (*Xanthorrhœa Preissii*), the grass tree (*Kingia Australis*) and the zamia palm (*Macrozamia Fraseri*) speak of ages buried in the remote geological past; and in the forests of the State these evidences of the vast age of the country are found growing side by side with modern trees.

From an imperial point of view, the economics of the forests of the various Dominions have as intimate a relationship with the whole question of forest conservation as the varieties of timber grown. So far as the development of the State of Western Australia is concerned, it may be said with perfect justification that no item of the State's great heritage of natural assets has played a more important part in its onward march than its forests. The plain figures relating to the matter are illuminating. When the various items are gathered together, we find:—

The total value of timber, sandalwood and mallet bark exports amounts to	... £21,212,892
Total value of timber products used locally	9,200,000
Mining timber, estimated at	... £27,900,000
Total	... £58,312,892

It can be readily understood that the odd 21 millions representing the export of prime forest products had a determining effect in establishing credits for Western Australia in the markets abroad, particularly in those of India, South Africa, and Great Britain. A continuance of the export trade, it follows, must have an equally

important bearing on Western Australia's relations with outside countries, as it assists very materially in reducing the debit against her for imports. Economically, therefore, its forests have been a factor of the first importance in the State's commercial progress. This view of the question is fully recognized by the leaders of popular opinion in Western Australia, and the Forests Act of 1918 is a concrete endeavour to give expression to that opinion in a manner that will conserve the forests for the future as a valuable source of interchange.

From the imperial standpoint, Western Australia's hard wood wealth—and for this matter the same may be said of other States of the Commonwealth—offers to the Motherland a source of supply of the very finest timbers, capable of fulfilling every purpose to which wood is put. In fact, the hard wood forests under the Southern Cross can provide almost everything in the way of hard wood that in the past has been imported from foreign countries. If recovery from the disastrous wastage of war is to be speedy, we are assured by leaders in the political and economic spheres that the Empire must in future be more self-dependent than it has been in the past. If this economic theory be not translated into practice, the default will be due largely to lack of knowledge rather than to lack of patriotism on the part of British buyers. Among all the agencies that are being, and will in the early future be, employed to disseminate precise information as to the capabilities of the various dominions, there is every reason to believe that the Empire Forestry Association will occupy a foremost place. Its propaganda will enlighten the British public in regard to Empire timbers and with that enlightenment, it cannot be doubted, there will gradually grow up a preference for the timbers of the Empire.
