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Western



Australia.

FORESTS DEPARTMENT

SOME NOTES

ABOUT THE

FOREST RESOURCES OF  
THE STATE

WITH

ILLUSTRATIONS AND MAP OF MAIN  
FOREST REGION, AND GRAPH  
OF RELATIVE STRENGTHS,

AND ALSO

CATALOGUE OF EXHIBITS AT  
PEACE EXHIBITION,  
ADELAIDE, 1920.

*Issued under the authority of the Minister for Forests :*  
*THE HON. JOHN SCADDAN, M.L.A.*

PERTH :

BY AUTHORITY: FRED. WM. SIMPSON, GOVERNMENT PRINTER.

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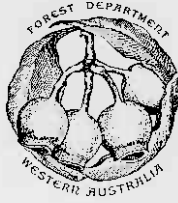
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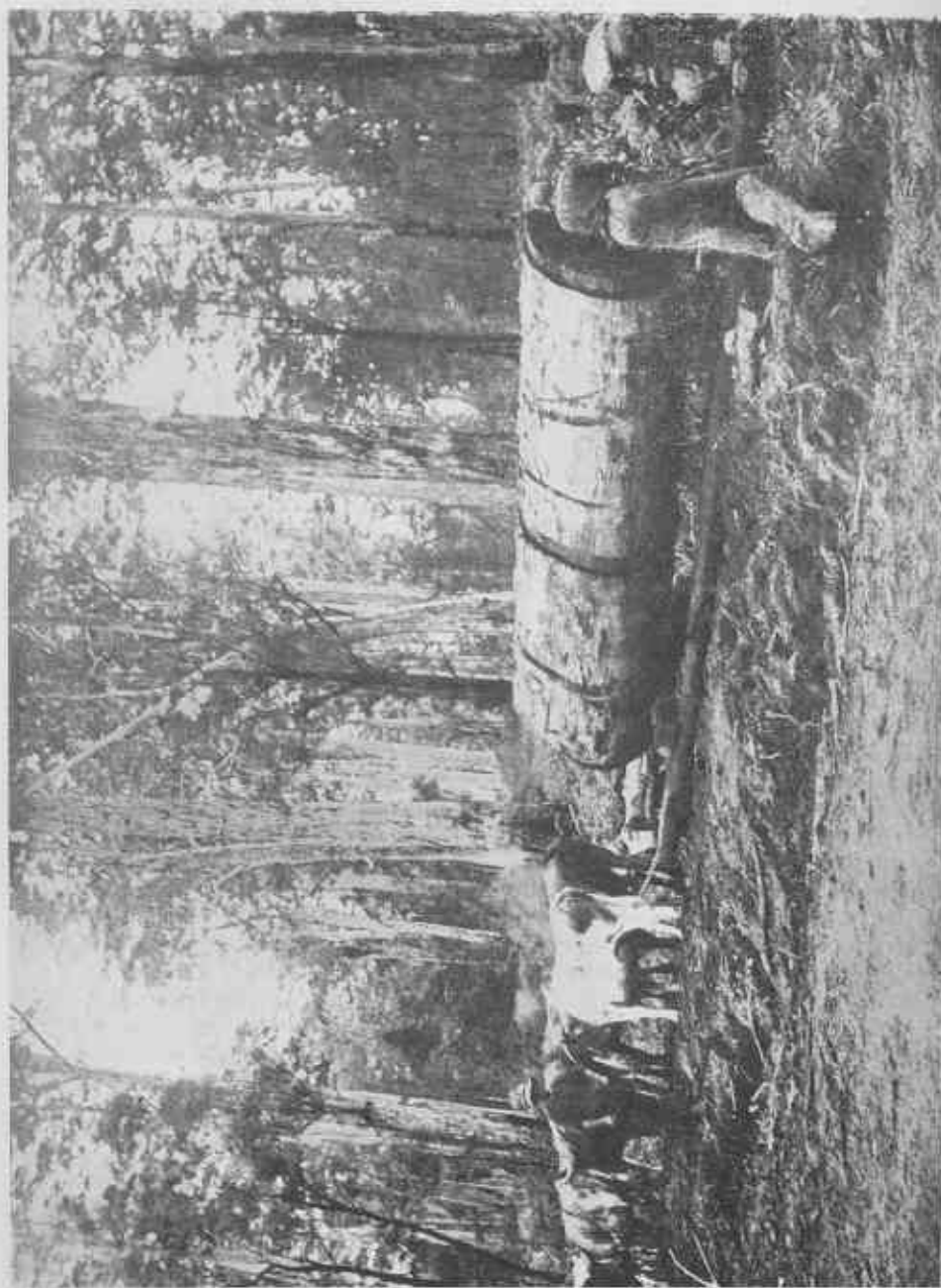
## Western Australia : ITS FORESTS AND TIMBERS.

### HISTORICAL.

**T**HERE is romance in the forest story of every State in the Commonwealth, and in none is the story more attractive, more picturesque, and more inspiring than in Western Australia. It is a plain statement of fact to say that the foundation in 1829, by the British Colonial authorities, of a settlement at the entrance to the Swan River was largely due to reports received in England as to the existence of immense forests of valuable hardwoods in the South-Western corner of what was then generally known as New Holland. The Government of New South Wales in December, 1826, formed a small settlement at King George III. Sound, not so much by way of developing or exploiting the great unknown region as of furnishing a gentle hint to outsiders that the "Union Jack" covered the territory. The settlement was known as "Frederick Town," so named in honour of H.R.H. the Duke of York, and this settlement has since become the prosperous town of Albany. In 1827 Captain Stirling, in the "Success," visited and partially explored the Swan River and its tributary the Canning. He also explored the country in the vicinity of the Vasse, behind which lie the forests which contain giant-jarrah and karri trees. The reports furnished to Governor Darling at Sydney by Captain Stirling, of the "Success," also did much to influence the Colonial Office in its decision to establish a settlement on the Swan River. The first settlers found abundant timber for house building ready to hand, and at Perth, the capital, for 20 years at least after the foundation of the Colony, every building, including Government House, was built of jarrah or other native timbers.

### EXPORT TRADE.

The extent of the forests and the high quality of the timber they contain early suggested to the hardy pioneer colonists that an export trade should be established. In these early days India and the Cape, for geographical reasons, bulked more largely in the commercial undertakings of the new Colony than did the Mother Country, and consequently the earliest shipments of jarrah were made to the countries named. There is no official record of the first shipments, although in a local newspaper established in 1832 references



Log Hauling in a Karvi Forest.



Typical Karri Forest.

are made to exports of "Mahogany," the name given by the early settlers to jarrah. The first official record of export was in 1836, when a shipment of 200 loads, valued at £2,500, was sent overseas. There is a hiatus of seven to eight years when, in 1844, a note occurs of a parcel valued at £163 having been despatched. From 1846, however, the official record is complete, and it exhibits a story of steady expansion. The following figures illustrate the growth of the export trade:—

	value	£
1850		1,048
1860	"	4,932
1870	"	17,551
1880	"	69,742
1890	"	63,080
1900	"	458,461
1910	"	972,608
1913	"	1,089,481

In 1914 came the war and with it a serious diminution of the export trade, owing to the lack of shipping. Since 1836 the total amount of timber exported from the State until 30th June, 1919, was 3,897,849 loads of a value of £15,693,989. The timbers represented by this huge total are almost entirely jarrah and karri.

#### EXPLOITATION.

The early colonists found a rich asset close at hand in the sandalwood, for which Western Australia is noted. The export of this wood to the East has been large, and the returns derived from it have played a very important part in the fortunes of the agricultural districts now known as the "Wheat Belt." The first official notice of the export of the wood is in 1845, when four tons, valued at £40, was sent away. There has been a steady rise in the amount of export, the total up to the end of June, 1919, being 321,360 tons, of a value of £2,827,035. The war has interfered very little with the export of sandalwood, as steamers from Fremantle to China have run with fair regularity right through the war period. In 1918, indeed, the export value (£81,834) is the largest that has ever taken place in any one year.

Another forest product of Western Australia, the export of which has reached notably large dimensions, is that of mallet bark, a substance which contains a large percentage of tannin, the active principle in all tanning agents. The export trade dates from 1903, when mallet bark to the value of £859 was sent away; in two years the export had reached the phenomenal figure of £154,087, and the total export value up to the end of June, 1919, has been £929,808.

The important part which its forests have played in the development of Western Australia, when the figures relating to forests products are collected and sent out in gross, become strikingly apparent.

	£
The total value of timber, sandalwood, and mallet bark exports amount to .. .. .	19,450,832
Total value of timber products used locally .. .. .	8,700,000
Mining timber estimated at .. .. .	25,900,000
<b>Total .. .. .</b>	<b>£54,050,832</b>

The forests of the State have, therefore, already yielded products to the enormous amount of over £50,000,000, and to this must still be added the value of gums, resins, and fibres, industrial and domestic firewood, regarding which no official statistics are available.

The timber in the great forests is dealt with by milling plants with a capacity unequalled by those of any other State in the Commonwealth. The work of milling is partly in the hands of the Government and partly in those of private companies and firms. In the karri forests a log of 15 to 25 tons is by no means uncommon, and with trees 80 to 120 feet to the first branch, three logs of ordinary length can be obtained. In one mill in the karri forests a roof rests on girder spans each of which is a single beam of karri 80 feet long. The State Mills at Pemberton, in the karri country have a capacity of 120 loads or 72,000 super. feet per day. At this mill also is an extensive powellising plant, and here a large proportion of the sleepers used in the Great Western Railway were treated. Here, too, there is an extensive fruit case factory, cases of native timbers now taking the place of those of imported wood in use in pre-war times.

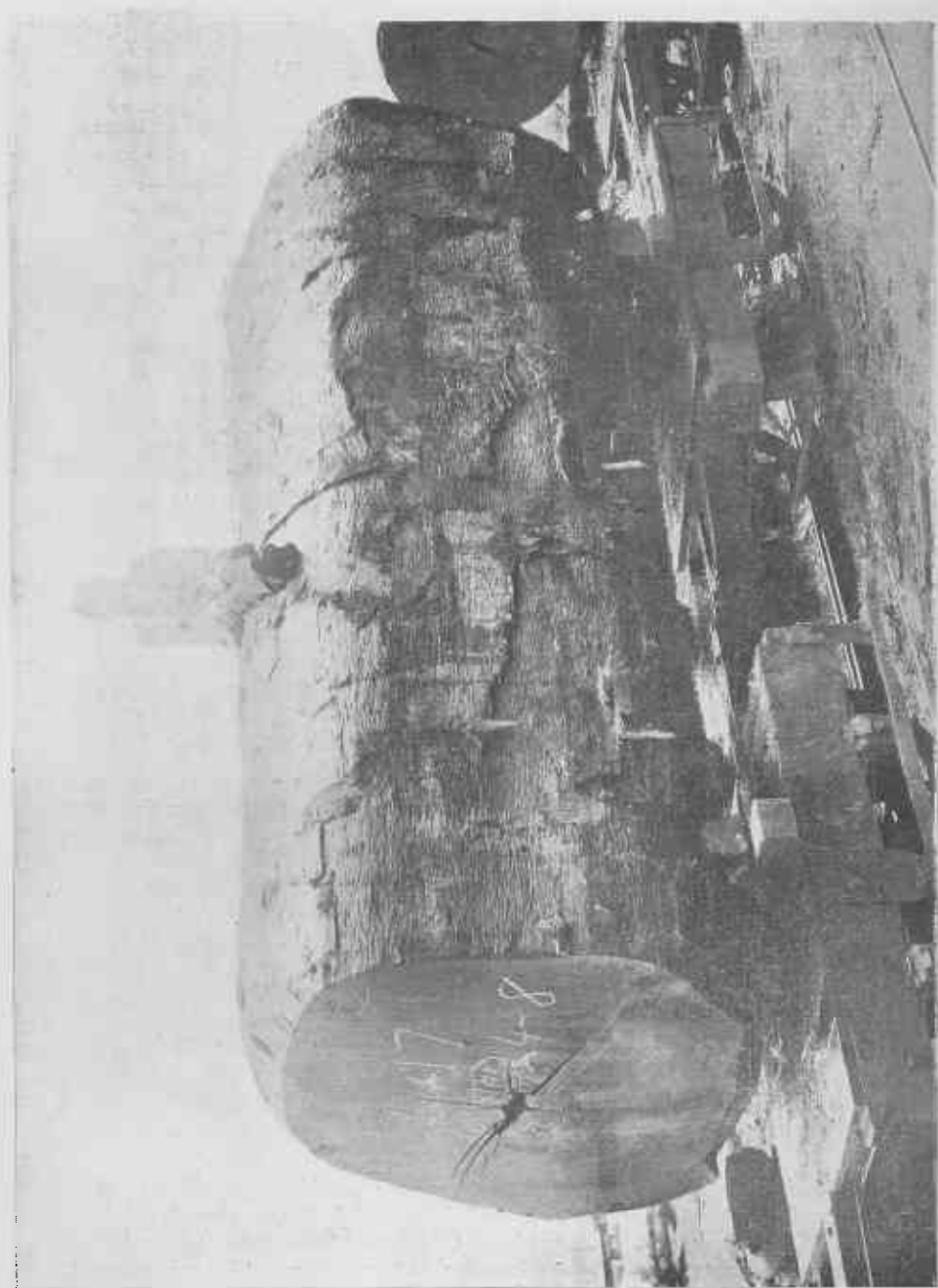
#### THE PRIME FLORA OF WESTERN AUSTRALIA.

It is not within the scope of this brief notice to describe the flora of the Western State. Western Australia has often been called the "paradise of botanists," and its gorgeous shrubs and flowers have been introduced into many other parts of the world and have made its flora famous. Of these probably the Blue Leschenaultia (*Leschenaultia Biloba*), the red Flowering Gum (*Eucalyptus ficifolia*), Christmas Bush (*Nuytsia floribunda*), the Sturt's Desert Pea (*Chionthus Dampieri*), the red and green Kangaroo Paw (*Anigozanthus Manglesii*), the black and gold Kennedya (*Kennedya Nigricans*), the Crimson Verticordia (*Verticordia Grandis*), are perhaps the best known. The State's wealth in timber trees is no less great, and the following is a list of the most important species:—

The natural order Myrtaceæ naturally takes the first place with its large genus eucalyptus:

Eucalyptus marginata	Jarrah
.. diversicolor	Karri
.. gomphocephala	Tuart
.. cornuta	Yate Gum
.. calophylla	Marri
.. loxophleba	York Gum
.. patens	Blackbutt
.. redunca	Wandoo
.. longicornis	Morrell
.. salmonophloia	Salmon Gum
.. salubris	Gimlet-wood

In addition to the genus eucalyptus, there are the melaleuca, of which there are a number. Santalaceæ are represented by Santalum cygnorum (sandalwood). Casuarineæ are represented by Casuarina Fraseriana (sheoak), Casuarina decussata (bulloak), and several other species. The proteaceæ are represented by a number of banksias, of which Banksia verticillata yields a magnificent timber. In the same natural order we have Xylomelum occidentale, the native pear. To take the place of the blackwood of the Eastern States, Western Australia possesses Raspberry Jam (*Acacia acum-*



Logs at a Bush Landing.





Karri Forest.  
(Note horse near tree.)

*mata*). This tree has the characteristically beautiful figure of its Eastern sister, though it does not grow to the same magnificent size.

#### FOREST AREA.

The area under prime forests in Western Australia is not yet accurately known. At the present moment the work of classification is being pushed on, and until this is completed the acreage carrying trees of commercial importance and value will not be available. Almost a generation ago a rough estimate was made by the then Forest Administration, with the following results:—

	Acres.
Jarrah, chiefly (with Blackbutt and Marri) ..	8,000,000
Karri .. .. .	1,200,000
Tuart * .. .. .	200,000
Wandoo .. .. .	7,000,000
York Gum, Yate, Sandalwood, and Jam .. ..	4,000,000
Total Area of the principal Forest surface of	
Western Australia .. .. .	20,400,000

These figures probably are an approximation of the areas in which the timber named may be found, but they certainly do not represent the facts so far as forests of commercial timbers are concerned. Wandoo, for instance, is placed at 7,000,000 acres, but this tree is seldom to be found in masses deserving to be called forests. It is scattered over immense areas as "Savannah Forest." The same may be said of the figures regarding jarrah and some of the other woods named. At the present time it may be estimated that the existing area of prime forests in Western Australia does not exceed 3,000,000 acres. But, under the conditions set up by the Forests Act, conservation on a sufficient scale will come into force, and the area of marketable timber will in due time gradually expand.

#### NORTHERN AND GOLDFIELDS TIMBERS.

What has already been said applies only to the South-West area of the State. In the North-West there are many valuable timbers, but none of them is found existing to an extent that deserves the name of forest. Some of these woods are of commercial importance, for example, coolabah and native ebony, and some of the varieties of the many mangroves of the Northern rivers hold large percentages of tannin. In the Cambridge Gulf district, Cypress Pine (*Callitris robusta*) exists in some quantity, particularly between the Gulf and the Northern Territory border. So far, little effort has been made to utilise this timber commercially. The whole of the forests of Western Australia are rich in gums, resins, and tanning agents, and these await further investigation by such skilled agencies as a Forest Products Laboratory.

#### PHYSICAL PROPERTIES OF WESTERN AUSTRALIAN TIMBERS.

Nowhere in the Commonwealth are stronger timbers found than in Western Australia. A glance at the following table of transverse strengths of certain Western Australian and foreign timbers brings this clearly into view. It is this exceptional strength and durability which has procured for the timbers of the State the ready acceptance accorded to them abroad.

TRANSVERSE STRENGTH OF BEAMS OF W. A. TIMBERS COMPARED  
WEIGHT FOR WEIGHT.

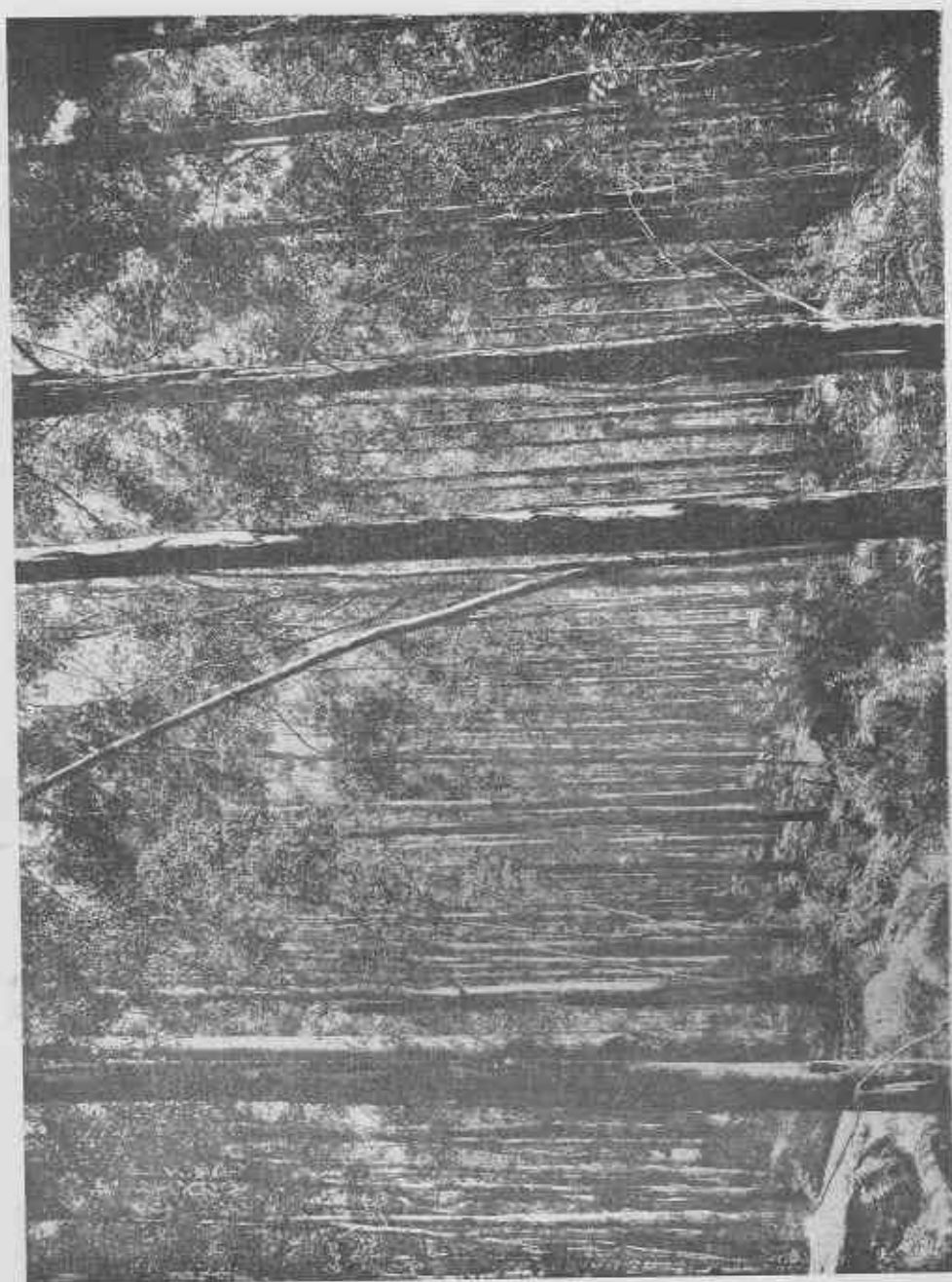
Name of Timber.	Weight in lbs. per cubic foot at 12 per cent. moisture.	Extreme fibre stress in lbs. per square inch at apparent elastic limit.	Comparison with Yate.		
			Strength.	Weight.	Strength Weight for weight.
W. A. TIMBERS.					
Yate ... ..	71	17,000	100	100	100
Red Tingle Tingle ...	62	14,776	86·9	87·3	99·6
Karri ... ..	58	13,550	79·7	81·7	97·6
Tuart ... ..	68	15,900	93·5	95·8	97·6
Raspberry Jam ...	62	14,200	83·5	87·3	95·6
Salmon Gum ... ..	66	15,000	88·2	92·9	94·9
Red Gum ... ..	56	12,600	74·1	78·9	93·9
Sheoak ... ..	52	11,100	65·3	73·2	89·2
Banksia ... ..	35	7,290	42·9	49·3	87
Blackbutt ... ..	54	11,000	64·7	76	85·1
Wandoo ... ..	71	13,650	80	100	80
Morrell ... ..	64	12,250	72	90·1	79·9
Jarrah ... ..	55	10,300	60·6	77·4	78·3
Coolabah (a) ... ..	82	14,461	85·1	115·2	73·8
York Gum ... ..	67	11,000	64·7	94·3	68·6
Native Pear ... ..	46	6,500	38·2	64·8	58·9
Karri-Sheoak* ( <i>Casuarinadecussata</i> )	44	5,000	29·6	62	47·7
FOREIGN TIMBERS.					
Padouk (c) ... ..	50	11,599	67·9	70·4	96·4
Teak (b) ... ..	49	10,583	62	69·6	89·2
Oregon, select ... ..	34·4	4,690	27·6	48·4	57
Oregon, merchantable	42·4	4,625	27·2	45·6	59·6
Oregon, 2nd quality	33·9	3,740	22	47·7	46·1

\*The corky-barked Casuarina from the Karri country. (a.) At 16 per cent. of moisture. (b) At 21 per cent. of moisture. (c.) At 17 per cent. of moisture.

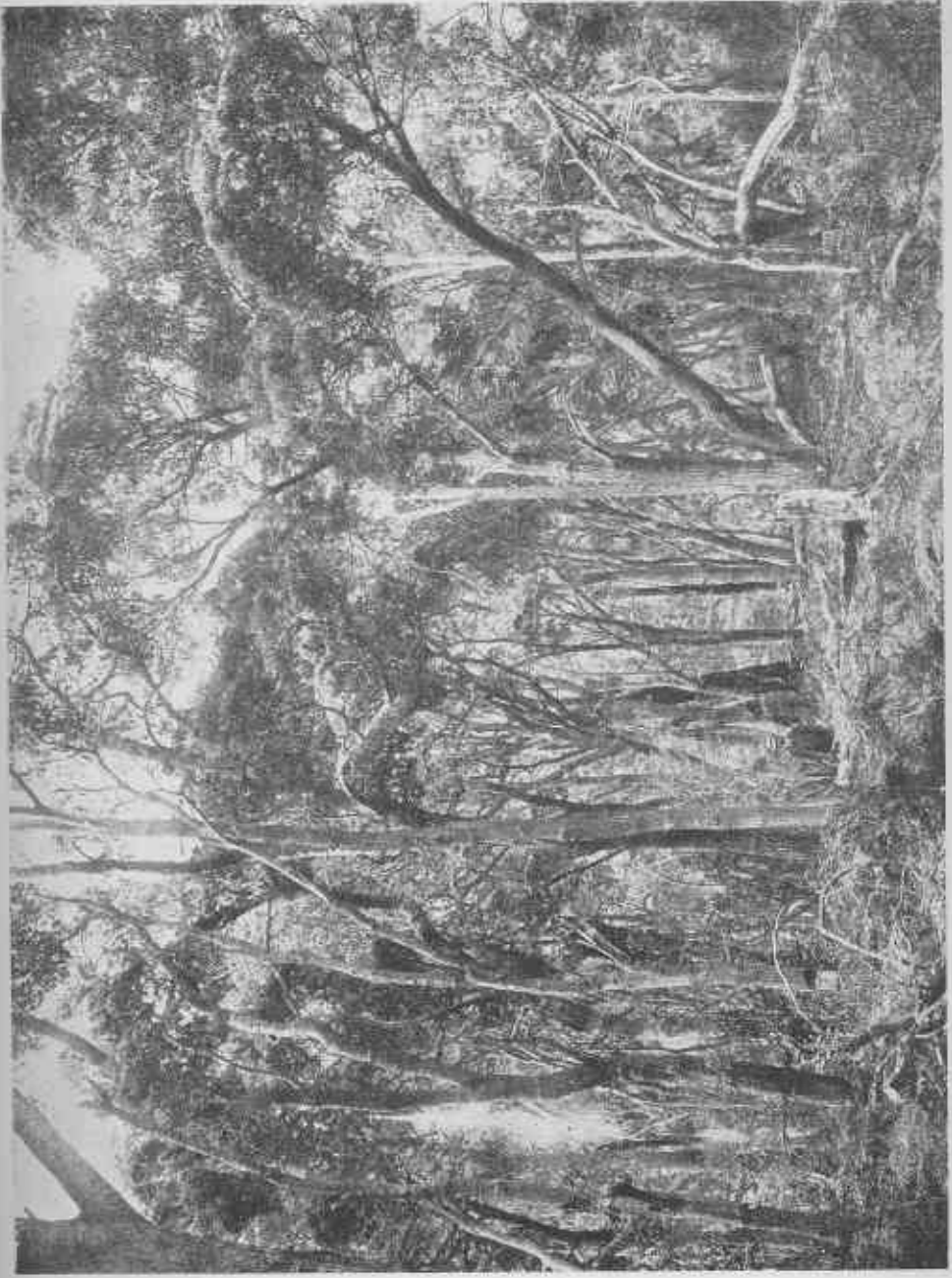
#### ADMINISTRATION.

For 90 years, that is from the foundation of this Colony in 1829 until 1918, the vast forest wealth of Western Australia was to all intents and purposes at the disposal of all and any who cared to avail themselves of it. The restrictions on cutting were few and ineffective, with the result that there was much wanton and reckless exploitation. Until the year last named the forests were administered under certain clauses attached to the Land Act, but in December last Parliament, recognising what the great forest resources meant in the national economics of the State, passed an Act "to provide for the better management and protection of forests." With the passing of this Act, a new era is opened in the history of Western Australian forests, as, under it, the Executive will be able to take measures of conservation and regeneration which in due time will bear beneficent fruits. Under the new Act a Forests Department is created, which will have the exclusive control and management of all matters of forests policy, all State forests and timber reserves, and the forest products of other Crown lands.

The Act provides for the planting or thinning of forests and the making of plantations and nurseries, and the distribution of trees therefrom; also



Karri Regrowth,



River Banksia.

the granting of permits, licenses and leases, and for the enforcement of the conditions of timber concessions, leases, permits, licenses and other forms of conversion granted under the Act or any former Act. The Head of the Executive is the Conservator of Forests, who, under the Act, is declared to be a corporate body with all powers thereto attaching. Power is given to the Governor to dedicate Crown lands as State Forests and to create timber reserves and State forests, and power is also given to the Executive to make such regulations as shall in its opinion be necessary for the protection of the State timber areas and for the good government of the resources placed under its care.

The forest "Working Plans," on which the continuity of forest policy, and incidentally the whole future of the forests, depends, are laid down by the Conservator, and having been approved cannot be altered except on the recommendation of the Conservator.

#### PRIVATE PLANTING OF TREES.

In America and Canada, where the importance of State forests is keenly appreciated, what is known as the farmer's "wood-lot" receives every attention. Farmers are encouraged to plant suitable trees on a portion of their holdings, and the various Forest Departments assist farmers in this direction in every way possible.

The Parliament of Western Australia has wisely introduced in the Forests Act clauses designed at once to assist the farmer, and by so doing to extend the State's production of timber on alienated land. It is provided that—"On the disposal of land under the conditional purchase provisions of 'The Land Act, 1898,' it shall be a condition that the purchaser shall use an area of not less than two per centum of the acreage of the holding acquired by him for the growth of timber or other forest produce," and in a subsequent subsection it is declared that "the planting of trees on not less than five acres of any such land shall be deemed an improvement within the meaning of the Act."

In order that the financial question shall not embarrass the operations of the Department, the Act states that "three-fifths of the net revenue shall be placed to the credit of a special account, and shall form a fund for the improvement and reforestation of State forests and the development of forestry."

#### STATE NURSERY.

An important branch of every Forest Department is the raising of young trees for use by the Department itself in afforestation work and also for the convenience of private citizens, particularly farmers, who desire to grow timber for shade purposes, for use on the farm, or for sale at maturity. The Western Australian Nursery is situated at Hamel, and there hundreds of thousands of trees of many varieties are raised. In some of the farming districts of the State, the original holders of the land, with an eye only to the present and the immediate future, practically denuded their holdings of all timber, thus depriving themselves and their successors of the countless advantages following the presence of timber on the farm. The value of what in America and Canada is called the "farmer's wood-lot" is not yet sufficiently recognised in Australia, although in some of the older settled districts the errors of earlier times are being repaired by vigorous planting of trees. There are few farms that do not possess more or less land unsuited for the

raising of wheat and other crops, but perfectly adapted for growing of such timbers as may suit the soil and the rainfall of the particular district. These areas, when planted with trees, form very valuable assets and, when the "wood-lot" has been well established and is yielding its yearly crop of mature timber, the area of ground which was once regarded as of little or no value at all becomes one of the most profitable on the holding.

LIST OF EXHIBITS SENT BY THE FORESTS DEPARTMENT OF  
WESTERN AUSTRALIA TO THE  
**PEACE EXHIBITION, ADELAIDE.**

MARCH - APRIL, 1920.

- 1 Adams table, made of jarrah. The top is all one piece.
- 3 chairs and 2 armchairs, William and Mary style, in carved jarrah.
- 1 Irish Chippendale table in jarrah. Top all one piece.
- 3 carved panels, jarrah.
- 1 jarrah sideboard.
- 1 jarrah office table.
- 1 jarrah typist's table and pigeonholes.
- 1 bottle sandal oil.
- 1 bottle sandal oil capsules.
- 1 Kingia Grass tree broom with jarrah stock.
- 12 turned and polished bowls, containing tan barks, etc.
- 1 dozen jarrah shingles.
- 1 dozen sheoak shingles.
- 1 sheet karri 3-ply.
- 7 photographs framed in Western Australian woods.
- 31 framed botanical drawings by Mrs. Lane-Poole.
- 4 specimens jarrah turnery.
- 1 Kingia trunk.
- 1 Kingia section.
- 1 bundle cleaned Kingia fibre cut to broom length.
- 1 bundle Kingia fibre before cleaning.
- 2 sticks Sandalwood.
- 1 section Blackboy.
- 1 trunk Blackboy.
- 2 Karri axe handles, by Mr. E. Wilson, Woorloo.
- 1 Yate axe handle, by Bunbury Repatriation Industries.
- 1 large jarrah board
- 1 Marri wheel spoke.
- 1 Morrell wheel spoke.
- 1 Karri wheel spoke.
- 1 Wandoo wheel spoke.
- 1 kiln dried York gum nave.
- Specimens kiln-dried Karri and Jarrah
- Carving in jarrah, "The Meeting of Dante and Beatrice," by Mr. Wm. Howitt, of Perth.

## SENT BY THE STATE SAWMILL DEPARTMENT, PERTH.

- 1 dozen Karri collapsible fruit cases.
  - 2 sets Karri wheel rims.
  - 1 Karri cask.
- Specimens of jarrah and karri for commercial uses:

## SENT BY THE RAILWAY DEPARTMENT OF WESTERN AUSTRALIA.

Set of test specimens showing tensile, transverse and torsional strengths of certain Western Australian timbers.  
Photographs of test pieces.

## PARQUET FLOORING.

Parquet flooring made by Mr. Bland of Adelaide. The 18" border is in jarrah and blackbutt. The main floor is jarrah, the sections being 3" x 1" permitting of 8½" square being formed. Flooring of this description is handsome in appearance, extremely durable and, if properly laid on concrete bed, is proof against white ants and other destructive insects.

## WOODEN COTTAGE.

An exhibit of the first importance is a cottage constructed of jarrah frame with karri weatherboards appropriately furnished. Dwellings of these materials are common in Western Australia, particularly in country districts. Such wooden buildings may be made as attractive architecturally as those of stone and brick. The original cost is much less as is the cost of upkeep. The wooden shingle is common in the Western State, and the roof of the Town Hall of Perth, built in 1868, is a magnificent example of the capabilities of the jarrah shingle. This roof, after over 50 years' service, is still in first class condition.