

1912.

WESTERN AUSTRALIA.

ANNUAL REPORT

OF THE

WOODS AND FORESTS DEPARTMENT

FOR THE

YEAR ENDED 30TH JUNE, 1912,

BY

C. G. RICHARDSON,

ACTING INSPECTOR GENERAL OF FORESTS.

Presented to both Houses of Parliament by His Excellency's Command.

PERTH :

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

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1912.

WOODS AND FORESTS DEPARTMENT.

REPORT BY THE ACTING INSPECTOR GENERAL OF FORESTS.

The Hon. the Minister for Lands.

Woods and Forests Department,
Perth, 7th September, 1912.

Sir,

I have the honour to submit my thirteenth Annual Report upon the operations of the Woods and Forests Department for the financial year ended 30th June, 1912.

I have, etc.,

C. G. RICHARDSON,
Acting Inspector General of Forests.

REVENUE AND EXPENDITURE.

The following statement shows the revenue and expenditure of the Department since its inception in 1895:—

Year.	Revenue.			Expenditure.		
	£	s.	d.	£	s.	d.
1st January to 31st December, 1895	3,175	5	2	1,108	5	5
1st January to 31st December, 1896	4,838	11	2	2,020	11	5
1st January to 31st December, 1897	12,320	6	4	3,489	14	4
1st January to 31st December, 1898	30,150	6	3	3,356	5	7
1st January to 31st December, 1899	16,999	11	3	2,438	7	5
1st January to 31st December, 1900	15,525	19	2	2,648	11	10
1st January to 31st December, 1901	18,477	16	2	2,747	6	3
1st January to 31st December, 1902	18,752	11	7	4,301	6	1
1st January to 31st December, 1903	20,478	9	1	3,789	3	4
1st January to 31st December, 1904	20,018	19	4	4,192	16	9
1st January to 31st December, 1905	18,479	18	6	5,089	18	6
6 months, 1st January to 30th June, 1906	10,973	18	4	3,385	1	9
1st July, 1906, to 30th June, 1907	22,783	1	5	6,207	15	2
1st July, 1907, to 30th June, 1908	23,498	13	3	8,801	14	3
1st July, 1908, to 30th June, 1909	29,484	3	8	9,030	12	6
1st July, 1909, to 30th June, 1910	31,549	6	11	8,531	0	9
1st July, 1910, to 30th June, 1911	37,477	3	5	8,862	16	8
1st July, 1911, to 30th June, 1912	44,560	10	10	10,469	4	10
	379,544	11	10	90,470	12	10

From the above statement it will be seen that to the 30th June, 1912, the revenue exceeded the expenditure by the large sum of £289,073 19s.

*Revenue and Expenditure for the year ended
30th June, 1912.*

The revenue derived from the forests of the State for the year under review amounted to the large sum of £44,560 10s. 10d., which is an increase of £7,083 7s. 5d. over that of the previous year, and is the highest revenue ever collected from timber during the history of Western Australia.

With the present prosperous condition of the timber industry and the opening up in the near future of large areas of forest country, there is every pros-

pect of the revenue derived from timber increasing rapidly every year.

The details of the revenue are as follows:—

	£	s.	d.
Rent on timber leases	10,755	10	0
Timber licenses, royalty on timber and sandalwood	30,227	0	3
Timber inspection fees	3,578	0	7

The total expenditure of the Department for the period above referred to amounted to £10,469 4s. 10d.

PINE PLANTING.

The clearing for pine planting at the Ludlow, on the Boyanup-Busselton railway line, is still being carried on upon a large scale, and it is hoped that next year about 1,000 acres will be available for planting.

The plantation already formed is now plainly visible from the railway line, and although its full extent cannot be seen, it presents a very fine area of pines to the public view.

This season it is expected that the plantation will be considerably extended, and another 120 acres planted with pines of various kinds, making a total area of about 400 acres.

As the bulk of the pines being planted at the Ludlow are *Pinus insignis*, commonly called the Remarkable or Monterey Pine, it is interesting to note that this species is being more generally recognised as a valuable timber tree in the Eastern States.

In a paper read before the Forestry Conference by the Conservator of Forests, Victoria, in November last, he stated that he felt sure that once this pine can be regularly put on the market, it will be in great demand, and that timber merchants and joiners will put a higher value on it as its merits become known.

In addition to the pine plantation established at the Ludlow, it is the intention of the Government to still further extend the planting of softwoods this year, and to form another plantation in the neighbourhood of Albany.

In this colder and more Southern portion of the State, suitable areas can, no doubt, be found eminently fitted for the growth of pines, where the species generally regarded as the softwoods of commerce are more likely to thrive than in the higher latitudes of the South-West division.

In these Southern forest regions, it is possible that the following more valuable timber trees may be successfully introduced:—

The famous Californian Redwood (*Sequoia sempervirens*) which in its immense dimensions exceeds the Karri trees. The Douglas Fir (*Pseudotsuga Douglasii*): this is one of the finest forest trees, and is of rapid growth. It attains a height of 300 feet with a girth of 12 to 15 feet, and is one of the most valuable trees from a financial and silvicultural point of view. The Scots Pine or common Fir (*Pinus sylvestris*) is another valuable tree, and is largely imported into Britain under the name of "Red Pine" as contrasted with the Baltic deals of Spruce and the "White Pine" of the Silver Fir. The Sugar Pine (*Pinus Lambertiana*), the Pitch Pine (*Pinus ponderosa*), the Weymouth Pine (*Pinus strobus*), and various other conifers indigenous to Eastern and South-Eastern North America might also be introduced into this portion of Western Australia.

The demands for softwoods is increasing rapidly every year, and in view of the predicted shortage in the world's supply, it behoves us to endeavour to grow for our own use the more valuable species of firs and pines.

One factor, however, that will militate against the formation or maintenance of large plantations in this portion of the State, is that the public regard the land as being too valuable to lock up under timber, and that it will be considered unwise policy by many to reserve country for timber when the land could be selected and put under valuable crops capable of bringing in immediate returns.

The plates numbered 1 and 2 represent portions of the pine plantation at the Ludlow, and give a good idea of the rapidity of the growth of the pines planted there.

Plate numbered 3 presents a general view of part of the plantation showing last year's planting in the foreground. The dark mass of pines on the sky line extends about half a mile further over the hill to the Ludlow River.

This portion of the plantation is composed of three year old pines, from 12 to 15 feet high, as shown on Plate No. 1.

WATTLE CULTURE.

The question of wattle growing for commercial purposes is again being taken up by the Department, and about 30 acres at the Ludlow have been sown with the seed of the broad-leaved Golden Wattle (*Acacia pycnantha*).

This is a species largely planted in South Australia and Victoria on account of its bark being very rich in tannin, and which has been grown with very profitable results in those States.

A few experimental plantations have already been formed in this State as object lessons to the public, and with a view of encouraging settlers to plant the useless portions of their holdings.

Unfortunately, however, so far, although many inquiries have been made regarding the culture of this valuable tree, I do not know of any plantations having been formed by private land owners, though the value of Wattles, and the fact that they will flourish on poor land, is generally recognised.

This species was introduced into South Africa years ago by means of seed obtained from Australia, and its cultivation has been the means of creating an important industry there, the export of bark having grown from 39 packages, valued at £11, in 1886 to 15,819 tons in 1905, valued at £92,911, and the yield of a few years ago from between 30,000 and 40,000 acres under cultivation in Natal was valued at £100,000 per annum.

To come nearer home, in Victoria, wattle is at present very profitably cultivated, and has brought as much as £5 2s. 6d. per ton for bark obtained from trees stripped between the fifth and eighth year of planting.

In Europe there is an almost inexhaustible market for Australian wattle bark. It commands a higher price than other barks, and there is little prospect of increased production injuriously affecting the exports, as the experience for years past has been that the prices have risen very considerably.

Wattles will grow and thrive on very poor country, and the poorest soil can be utilised. A heavy rainfall is not required, as they will do well with 10 to 16 inches of rain per annum.

In various parts of this State there is poor land where the conditions are favourable to wattle culture, and where this tree could be grown with profitable results.

It grows very rapidly from seed, and the cheapest way of forming plantations is by broadcast sowing, the trees being subsequently thinned from time to time.

When once a plantation has been properly established there will be no difficulty in obtaining a regular crop, for as soon as the trees are stripped, natural reproduction will do all that is required, and a new



Plate No. 1.
Remarkable Pines, 3 years old, Ludlow Plantation.



Plate No. 2.
Remarkable Pines, 1 and 2 years old, Ludlow Plantation.



Plate No. 3.
Remarkable Pines, view of portion of Ludlow Plantation.

crop will spring up again in a short time from the seed shed by the parent tree.

A successful plantation would produce five tons of bark per acre, when the trees were fit for stripping, which at, say, £5 per ton would mean a return of £25 per acre.

STATE NURSERY.

A fine stock of trees for distribution throughout the State has been grown this season at the Hamel State Nursery.

The various kinds and numbers raised are shown in the following list:—

List of Trees and Shrubs raised in the State Nursery.

Agonis flexuosa	Peppermint (W.A.)	1,364
Acacia Baileyana	Silver Weeping Wattle (N.S.W.)	1,280
Acacia decurrens	Black Wattle (N.S.W.)	1,074
Acacia dealbata	Silver Wattle (Queensland)	1,986
Acacia pycnantha	Golden Wattle	1,682
Araucaria Bidwilli	Queensland Pine	102
Araucaria excelsa	Norfolk Island Pine	1,560
Ceratonia siliqua	Carob Bean	1,362
Cupressus (of sorts)	Cypress	6,288
Eucalyptus citriodora	Lemon-scented Gum (Queensland)	1,298
Eucalyptus corynocalyx	Sugar Gum (S.A.)	6,040
Eucalyptus ficifolia	Red-flowering Gum	3,177
Ficus Australis	Pt. Macquarie Fig	1,060
Ficus macrophylla	Morton Bay Fig	650
Lagunaria Pattersonii	Pyramid Tree	1,140
Phoenix dactylifera	Date Palm	250
Pittosporum undulatum	Cheese Wood	1,089
Schinus molle	Pepper Tree	7,682
Grevillea robusta	Silky Oak	1,064
Thuya occidentalis	Northern White Cedar (Arbor vitae)	1,020
Laurus Camphora	Camphor Laurel	5,540
Sterculia	Kurrajong	486
Robenia Pseudo Acacia	False Acacia	2,010
Melia Adzedarach		
Salix Aurea	Basket Willow	400
Populus fastigata		
Platanus orientalis	Plane Tree	1,974
Populus Alba	Silver Poplar	206
Pinus insignis	Remarkable Pine	86,000
Pinus halipensis	Aleppo Pine	600
Corynocarpus taevigata		
Alberia Caffra	Kei Apple	4,400
	Texas Umbrella Tree	2,729
Acacia Melanoxydon	Blackwood	422
Morus Alba	White Mulberry	240
Salix Babylonica	Weeping Willow	250
Tamarix Gallica	Tamarisk	
Sterculia Acerifolia	Queensland Flame Tree	240
Eucalyptus Globulus	Blue Gum	2,018
Dracaena Draco	Dragons Blood	461
Syncarpia laurifolia	Turpentine	2,300
	Hakeas	601
Quercus Hodgkinsonii	Evergreen Oak	100
Fraxinus Excelsior	English Ash	500
Agave rigida	Sisal Hemp	6,300
		<hr/>
		158,945

DISTRIBUTION OF TREES.

The following list shows the number of trees and the various public bodies to which same were supplied during the season—

Board of Health	1,100
Cemeteries	119
Churches	577
Convents	516
Government Gardens	243
Government Institutions	3,203
Hospitals	1,090
King's Park	1,036
Municipalities	9,404
Old Men's Home	270
Progress and Farmers' Associations	5,735
Railways	1,434
Road Boards	13,958
Recreation Reserves	800
Schools	3,335
Settlers	25,433
	<hr/>
	68,323

Goldfields.

Gaols	6,000
Municipalities	794
Road Boards	2,075
School of Mines	48
Schools	456
Water Supply Department	566
Railways	216
	<hr/>
Total number of trees distributed	78,478

From the above list it will be seen that during this season the number of trees distributed throughout the State amounted to 78,478. This is 20,679 in excess of those distributed last season, and shows that the people of the State are becoming more interested in tree planting.

TIMBER IMPORTS.

The value of the timber of various species and sizes imported into Western Australia during the year ended the 30th June, 1911, amounted to £130,256, and for the year ended the 30th June, 1912, the value of the imports came to £97,663, being a decrease of £32,593 as compared with the previous year.

TIMBER EXPORTS.

The following returns, kindly supplied by the Collector of Customs, Fremantle, show the quantity and value of the timber exported beyond the Commonwealth during the years ended the 30th June, 1911, and 1912, respectively, and the various countries to which same was exported.

Statement showing the Quantity and Value of Timber exported to countries beyond the Commonwealth during the year ended 30th June, 1911.

Country to which exported.	Super. feet.	Value.
Timber, Undressed (Other):		£
United Kingdom	8,221,487	54,001
Ceylon	394,013	2,655
India	27,871,434	185,064
New Zealand	9,041,180	59,752
Egypt	17,958,779	119,606
Mauritius	231,216	1,541
Natal	7,745,921	48,883
Italy	28,280	195
Uruguay	3,434,304	22,895
Philippines	2,808,336	18,722
Belgium	3,276,861	21,859
Germany	124,063	828
Argentine	752,292	5,015
China	352,032	2,296
Portuguese East Africa	4,732,613	29,957
Singapore	17,628	118
United States of America	384	3
Hong Kong	24,018	162
Germany	23,520	157
Cape Colony	4,925,277	32,196
Total	91,963,638	605,905
Logs not sawn and Spars (in the rough):		
United Kingdom	2,940	16
India	461,568	2,807
New Zealand	37,140	247
Argentine	13,152	88
Portuguese East Africa	193,440	1,290
	708,240	4,448
Grand Total	92,671,878	610,353

As no record is kept by the State Customs Department of the timber shipped to the Eastern States, I am unable to give details of such exports for the year ended 30th June, 1911.

Through the courtesy, however, of the Deputy Government Statistician, I am enabled to give the value of the timber exported to the Eastern States for the above-mentioned period, viz., £303,488.

As the foregoing return only includes the timber exported beyond the Commonwealth, the value of the shipments to the Eastern States, viz., £303,488 must be added to it. This brings the total exports for the year ended the 30th June, 1911, up to the large amount of £913,841.

Return showing quantity and value of Timber exported to Countries beyond the Commonwealth during the year ended 30th June, 1912.

Countries to which exported.	Quantities in Sup. Ft.	Value.
Timber, undressed (other):		
United Kingdom	8,632,525	£ 57,559
India	41,514,618	275,781
Natal	6,173,059	40,281
Portuguese East Africa	310,428	2,070
Java	132,216	882
Ceylon	415,830	2,839
Philippines	1,584,792	10,565
Germany	261,708	1,887
New Zealand	12,914,009	86,104
Cape Colony	20,123,062	135,868
Egypt	57,771	385
Uruguay	1,777,140	11,848
Argentina	2,603,112	17,352
China	2,137,404	14,249
Mauritius	448,428	2,990
Belgium	2,643,772	18,222
Total	101,729,874	678,882
Logs (Not sawn):		
India	803,170	5,360
Natal	103,200	688
New Zealand	6,020	42
Argentina	85,800	572
Philippine Islands	1,200	8
Total	999,390	6,670
Grand Total	102,729,264	685,552

This return, also for the reasons mentioned above, only shows the timber exported beyond the Commonwealth for the year shown above. Through the courtesy of the Deputy Government Statistician, however, I am able to give the shipments to the Eastern States. These amounted to 47,950,332 super. feet, valued at £312,442, thus bringing the value of the total exports for the year ended 30th June last up to £997,994. From a comparison of the foregoing two returns, it will be seen that during the year ended the 30th June, 1911, the total value of the timber exported amounted to £913,841, and that for the year ended 30th June, 1912, the total exports amounted to £997,994, being an increase of £84,153.

SANDALWOOD EXPORTS.

The following returns show the quantity and value of the Sandalwood exported from Western Australia during the years ended 30th June, 1911, and 1912, respectively:—

Return showing quantity and value of Sandalwood exported to countries beyond the Commonwealth during the year ended 30th June, 1911.

Countries to which exported.	Quantity.	Value.
	cwts.	£
Singapore	14,374	6,646
India	17,361	7,218
Hong Kong	114,986	52,929
China	7,140	2,348
Total	153,861	69,141

Return showing quantity and value of Sandalwood exported to countries beyond the Commonwealth during the year ended 30th June, 1912.

Countries to which exported.	Quantity.	Value.
	cwts.	£
Singapore	4,903	1,956
China	12,415	4,966
India	7,201	3,213
Hong Kong	69,651	33,219
Total	94,170	43,354

From the foregoing statements, it will be seen that for the year ended 30th June, 1911, the value of the Sandalwood exported from this State amounted to £69,141, while the exports for the same period ended the 30th June, 1912, amounted to £43,354.

The revenue derived from royalty on Sandalwood during the year under review amounted to £1,350.

MALLET BARK EXPORTS.

The following returns show the quantity and value of the Mallet bark exported during the years ended the 30th June, 1911, and 1912.

No record being kept by the State Customs Department of the shipments to the Eastern States, these returns only show what was exported beyond the Commonwealth.

Return showing quantity and value of Mallet bark exported to countries beyond the Commonwealth during the year ended 30th June, 1911.

Countries to which exported.	Quantity.	Value.
	cwts.	£
Germany	160,620	64,166
Belgium	23,320	9,054
Ceylon	61	27
Total	184,001	73,247

As the above return only includes the bark exported beyond the Commonwealth, the value of the shipments to the Eastern States must be added.

These, I have ascertained through the courtesy of the Deputy Government Statistician, amounted to £10,675; and bring the total value of the exports for the year ended the 30th June, 1911, up to the large sum of £83,922.

Return showing the quantity and value of Mallet bark exported to countries beyond the Commonwealth during the year ended 30th June, 1912.

Countries to which exported.	Quantity.	Value.
	cwts.	£
Germany	73,640	30,533
Belgium	34,680	14,034
New Zealand	100	43
Total	108,420	44,610

As the above return also only includes the bark exported beyond the Commonwealth, the value of the shipments to the Eastern States must be added to it.

These, I am informed by the courtesy of the Deputy Government Statistician amounted to £13,902, and make the total value of the exports for the year ended 30th June, 1912, £58,512, being a decrease of £25,410 as compared with the previous year.

INSPECTION OF TIMBER FOR EXPORT.

The following table shows the quantity of railway sleepers, scantling, etc., inspected and branded for export by the various timber inspectors during the past year, and the countries to which same were sent:—

Country to which exported.	Sleepers.	Scantlings, etc., in loads.
China	10,093	666 $\frac{10}{50}$
Ceylon	42,017	
India	985,358	5,001 $\frac{5}{10}$
London	3,836	732 $\frac{6}{10}$
Victoria	2,411	
Manilla	22,713	16 $\frac{3}{10}$
New Zealand	121,805	3,005 $\frac{2}{10}$
South Australia	146,978	488 $\frac{2}{10}$
South Africa	969,439	460 $\frac{3}{10}$
South America	36,339	404 $\frac{10}{10}$
Mauritius	74 $\frac{4}{10}$
Antwerp	78 $\frac{2}{10}$
	2,340,989	10,928 $\frac{4}{10}$

As will be seen from the above table, 2,340,989 sleepers and 10,928 loads of scantling were inspected,

being a considerable increase over the quantity that passed through the hands of the inspectors last year.

I am glad to state that the various companies engaged in the timber industry now recognise the advisability of the Department exercising the greatest care in passing timber for export, and that they offer every assistance to the inspectors in the execution of their duty.

ALIENATION OF TIMBER COUNTRY FOR SELECTION.

The most important question of protecting our forest lands from alienation and ultimate destruction by selection has, I am glad to say, been definitely settled at last.

The indiscriminate surveying of large areas of land for selection carrying quantities of valuable karri has been put a stop to, and parties of surveyors are at present classifying the karri forests.

Each party is now accompanied by a forest ranger, who points out to the surveyor the land which carries valuable or marketable timber, and instead of splendid timber country being surveyed into blocks for settlement as in the past, such land is now reserved for forest purposes, and only the poorly timbered lands suitable for successful settlement subdivided into blocks.

The neglect of surveyors in the past to discriminate between land fit for forest growth and that suitable for cultivation has resulted in large areas of valuable karri and jarrah forest being destroyed or lost to the State, but I am glad to say that the present Government, recognising the folly of such policy, has decided on the classification of our Southern forests before permitting selection in them.

This classification of forest country is one of the most important steps that has yet been taken by any Government in the history of forestry in Western Australia, and will result in a great saving being effected to the State, for instead of innumerable blocks being surveyed for selection and then subsequently reserved, when it was pointed out by this Department that they contained large quantities of valuable timber, the land is now first of all classified, and that suitable for cultivation is surveyed into blocks, and the balance with its valuable timber set apart as forest reserves.

FOREST MANAGEMENT.

In countries where forestry has been studied with most care, several different systems of management have been devised, in each of which certain advantages may be gained when properly applied. The preference that should be given to one or another must in all cases be determined by the local circumstances and conditions, and in this State the conditions have resulted in the employment of the selection method, called by the French "fuertage," that is, stealing or taking here and there from the forest.

Under this method, the large trees are cut out, leaving others not yet matured to grow to full size. It is the same plan that is in common use in the reserves in America, where the timber is taken here and there as it is wanted for particular uses, all those above a certain girth being cut out, and those of a smaller size being retained, until the area can be again cut over in a similar manner.

It results from this management that the forest always presents a great diversity of growth of young trees, that it is never absolutely cut out and that as the older and matured trees are removed, such clear-

ances are made all over the area as to permit of Nature reproducing the species by natural regeneration by seed shedding from the parent trees.

In this way, although the forest may have been cut over, it is never cut out, and Nature goes on reproducing the species for all time. In fact, it is the same phenomenon which occurs in the primeval forest, trees dying or being blown down, fires burning out spaces, and Nature all the time doing her utmost to repair the damage and perpetuate the species.

The standard size at which the undermentioned trees may be removed from our forests, measured at three feet from the ground with the bark on are respectively as follows:—

Jarrah	..	90	inches	in	circumference
Karri	..	108	"	"	"
Tuart	..	90	"	"	"
Blackbutt	..	90	"	"	"
Wandoo	..	48	"	"	"
Morrell	..	48	"	"	"
Yate Gum	..	36	"	"	"
Sandalwood	..	15	"	"	"

From the above it will be seen that a very large girth restriction is imposed on cutting in this State, and that consequently a large percentage of timber is left on the cut out areas to come on and form a second crop.

RE-AFFORESTATION.

The European system of natural regeneration under standards or shelter-woods by seed shedding from the parent trees is the only practical system that can be carried out in this State at the present time—planting being quite impracticable, owing to the enormous cost that would be entailed. Under this system regeneration goes on in all parts of the forest by the removal of the oldest, largest, diseased or defective trees wherever they are found, and also by the removal of the tree weeds, and young growth of such a crooked growth or faulty nature as would never develop into useful lengths.

This is the system which occurs in primeval forests. When a tree falls from old age, or some other cause, an opening is thus formed in the cover overhead, the seeds falling from the adjacent trees germinate and develop into seedlings, and these grow up under the shelter of the older trees until they in their turn become parent and shelter trees. In this manner a primeval forest, if undisturbed, goes on regenerating itself for ages. The process is, of course, a slow one, as the young crop will develop when sufficient light is admitted by the fall or death of the old trees. In silviculture it is accelerated by the artificial removal of a portion of the old trees when they have reached marketable dimensions.

This system of natural regeneration is now being carried out in Western Australia; but owing to the vast areas to be treated and the enormous expenditure that would be necessary, it is impossible at this stage of the country's history to carry it out upon other than a small scale.

The indigenous timbers of this State are endowed with wonderful recuperative and regenerative powers, examples of which may be seen where the forests have been heavily cut over, or on any abandoned settler's holding, mill-site, log-landing, or ring-barked area.

In fact, there are few forests in the world which, if Nature is given a chance, will regenerate themselves naturally with greater rapidity than ours. I have indeed little fear, if the system above referred to

could be extensively carried out, that the forests of this State would be maintained for all time, and supply a sounder and better class of timber than is being obtained from them at the present time, as a very large percentage of the waste and faulty timber now cut is due to the fact that the trees are over matured, and should have been utilised years ago.

Plates Nos. 4, 5, 6, 7, and 8, show the natural reproduction of jarrah on cut over areas in the Darling Ranges.

EXPERIMENTAL RE-AFFORESTATION OF JARRAH.

The area of cut-out jarrah country near Waroona, upon which an improvement felling was made some two years ago in order to aid natural re-afforestation, is looking well.

All the over-matured, dying and useless trees were cut down and burnt up, with the result that a second crop of fine young jarrah is now coming on.

Unfortunately the cost of treating this class of forest was found to be too high to allow of re-afforestation on these lines being carried out over a large area of jarrah country, and only a small area was treated.

With the aid of traction engines and explosives, it may, however, be found practicable to considerably reduce the cost, and to extend this experiment year by year.

EXPERIMENTAL RE-AFFORESTATION OF WANDOO.

An interesting experiment, and one which will be of considerable value in providing data regarding the powers of wandoo to reproduce itself by natural re-afforestation is now being made on the Eastern Railway line, near Wooroloo.

A large tract of country has been set apart in the locality mentioned as a Government Reserve.

This area was heavily cut over some years ago, with the result that nearly all the wandoo of commercial value has been utilised, and the timber remaining on the ground is mostly worthless, old, half-dead, and dying trees.

These and the young trees of a crooked or faulty growth have been ringbarked, care being taken to leave any healthy matured tree that may be left, and all young sound growth.

In this way the large amount of useless timber that has occupied the ground to the exclusion of any re-growth has been destroyed, and room has been made for Nature to reproduce the species by natural regeneration.

In a few years' time I feel sure that this reserve will prove how our cut-out wandoo forests can be re-afforested, and how a supply of this very valuable timber can be provided for the future.

EXPERIMENTAL RE-AFFORESTATION OF TUART.

The Tuart (*Euc. gomphocephala*) is one of the most valuable of our indigenous commercial timber trees.

It is locally used in the construction of railway wagons, wheelwrights' work generally, and other purposes where great strength, solidity, and hardness are required.

This species is confined in its habitat to the limestone belts lying along the coast from Perth to Busselton, and there is only a very limited supply of this fine timber.

So valuable is this timber now regarded, and so great is the local demand for it, that its export has been prohibited by the Government.

Recognising these facts and that the supply, even for our own use is insufficient, the small areas remaining having been heavily cut over, the Government has decided to take steps to aid the natural regeneration of this valuable species.

With this end in view a reserve of about 1,200 acres near the Capel River is being fenced, and it is intended to take steps to aid Nature in re-afforesting this area.

Tuart, in common with other Eucalypts possesses in a remarkable degree the power of natural reproduction, so that the problem of re-afforesting this reserve is a comparatively simple one.

All that is necessary is to assist Nature by destroying the over matured useless trees, removing the inferior ones, such as the peppermints, banksia, etc., and cleaning up and burning off all *débris*.

This treatment, if properly and continuously applied, with the restriction of grazing for a few years, will eventually result in a timber yield much in excess of that obtained before from the reserve.

At the present time there are two traction engines busily engaged in pulling down all the old worthless

tuarts, peppermints, etc., on this area, and when these have all been burnt off, Nature will be able to reassert herself and reproduce this valuable species by natural regeneration.

Plate numbered 9 shows the young growth of tuart that has grown up on an area cut out in the early days of the timber industry, and proves how rapidly this valuable species will reproduce itself even when exposed to fire, unrestricted grazing, and other disadvantages.

NATURAL RE-AFFORESTATION OF KARRI.

As regards the power of the karri to reproduce itself by natural means, there are many striking instances of this to be seen in various places, particularly the old cut-over areas on the Karridale Concession and abandoned settlers' holdings on the Donnelly and Warren Rivers.

I had hoped to obtain photographs of these for insertion in this Report, but unfortunately have not been able to procure same in time.

SAW MILL PERMITS.

The following return shows the Saw Mill Permits in existence up to 30th June, 1912:—

Name.	No.	Area.	District.
Whittaker Bros.	1/11	20,000	Murray
Ferguson, J. M., Limited	3/11	2,370	Wellington
Bunning, Robert	8/11	4,700	Wellington
Bunning Bros.	9/11	10,000	Wellington
Vincent, R. P. and Vincent, W. H.	10/11	19,800	Nelson
Swan Saw Mills, Limited	13/11	2,633	Preston
Swan Saw Mills, Limited	14/11	9,000	Preston
Bunning, Robert	15/11	5,300	Wellington
Adelaide Timber Company, Limited	16/11	12,000	Wellington
Swan Saw Mills, Limited	19/11	1,000	Wellington
Elkin, John George	21/11	5,300	Wellington
Bunning Bros., Limited	25/11	10,000	Wellington
S. W. Timber Hewers' Co-operative Society, Limited	26/11	17,000	Collie
S. W. Timber Hewers' Co-operative Society, Limited	27/11	20,000	Collie
Bethell, George Moore	30/11	10,000	Nelson
Port, Honey & Company, Limited	34/11	28,510	Murray
The Timber Corporation, Limited	35/11	6,800	Nelson
Bunning Bros., Limited	36/11	10,000	Wellington
Lewis, J., and Reid, F. W. S.	37/11	19,730	Wellington
Walgarrup Karri and Jarrah Company, Limited	42/11	19,000	Nelson
Buckingham Bros.	44/11	18,000	Wellington
Vincent, Wm. Hy.	50/11	15,000	Nelson
Sexton, Walter B.	58/11	15,000	Nelson
Jackman, Herbert Thos.	60/11	38,000	Wellington
W.A. Jarrah Saw Mills, Limited	61/11	58,000	Nelson
Bunning, Robert	63/11	8,000	Wellington



Plate No. 4.
Natural re-production of Jarrah (*Eucalyptus marginata*) upon cut-over areas on the Jarrahdale Concession, Darling Ranges.

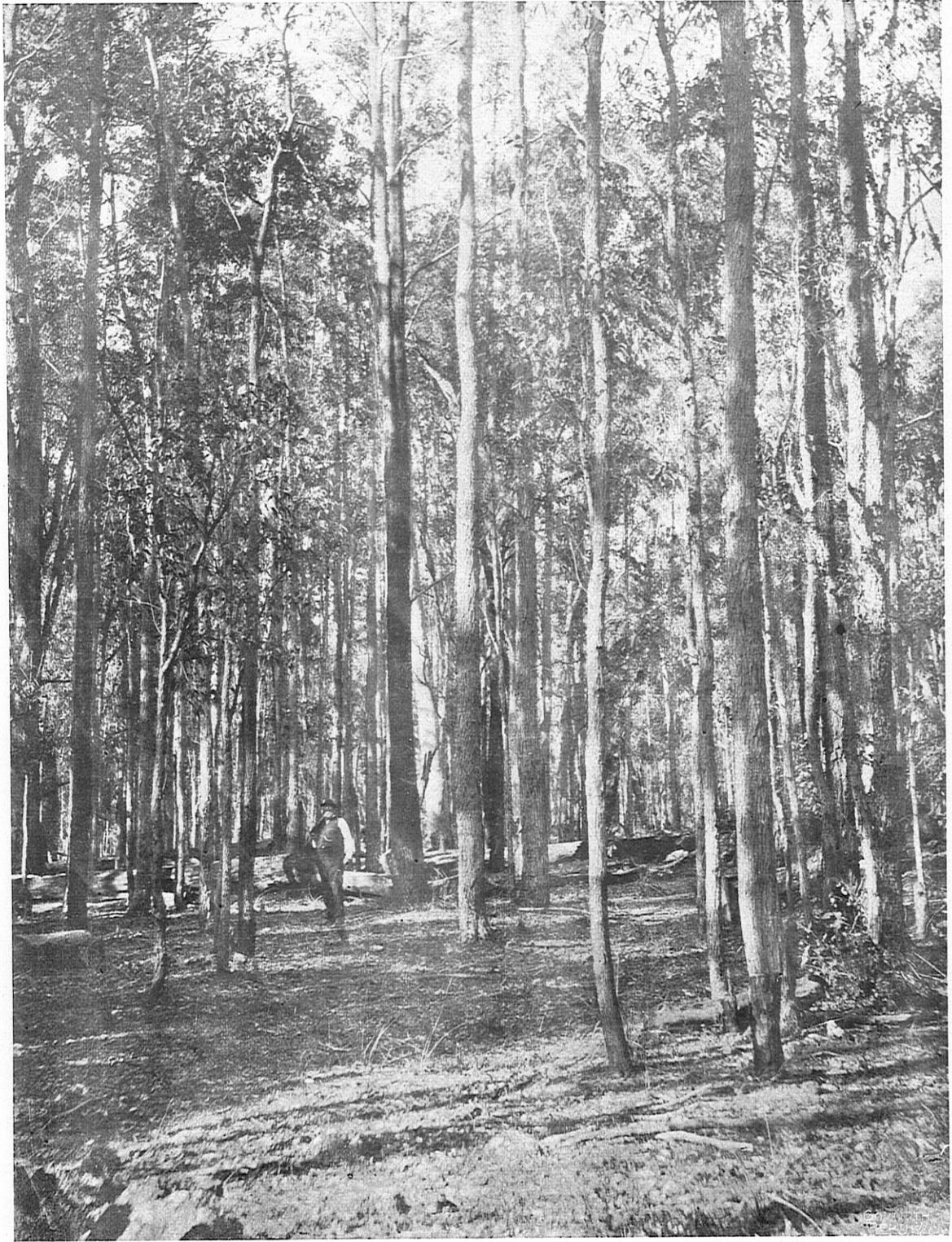


Plate No. 5.
Natural re-production of Jarrah (*Eucalyptus marginata*) upon cut-over areas on the Jarrahdale Concession, Darling Ranges.



Plate No. 6.

Natural re-production of Jarrah (*Eucalyptus marginata*) upon cut-over areas on the Jarrahdale Concession, Darling Ranges.



Plate No. 7.
Natural re-production of Jarrah (*Eucalyptus marginata*) upon cut-over areas on the Jarrahdale Concession, Darling Ranges.



Plate No. 8.

Natural re-production of Jarrah (*Eucalyptus marginata*) upon cut-over areas on the Jarrahdale Concession, Darling Ranges.

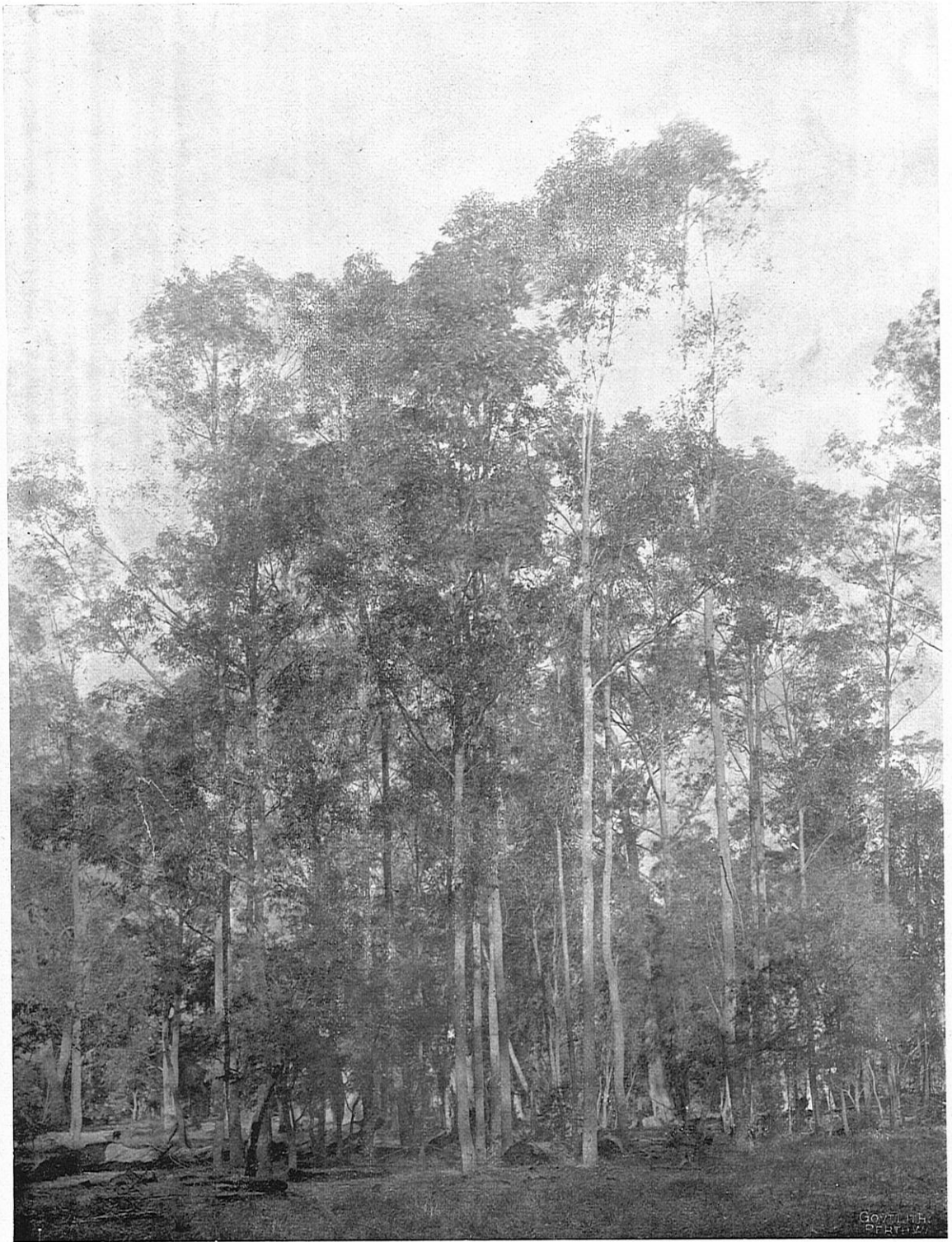


Plate No. 9.
Natural re-production of Tuart (*Eucalyptus gomphocephala*) upon old cut-over area near Ludlow River.