

1917.

—  
WESTERN AUSTRALIA.

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# ANNUAL REPORT

OF THE

## WOODS AND FORESTS DEPARTMENT

FOR THE

YEAR ENDED 31<sup>ST</sup> DECEMBER, 1916.

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

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[FIRST SESSION OF THE TENTH PARLIAMENT.]

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## ANNUAL REPORT OF THE WOODS AND FORESTS DEPARTMENT FOR THE YEAR ENDED 31st DECEMBER, 1916.

### INDIGENOUS FORESTS.

The total area of indigenous forests in Western Australia is not at present known. In 1899 Mr. Ednie-Brown, late Conservator of Forests, defined the forest regions as follows:—

	Acres.
Jarrah, chiefly (with Blackbutt and Red Gum) ...	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

The above estimates do not include the timber in the Kimberley district, the indispensable mining timber and fuel forests of the goldfields, nor do they extend to the limits of the Sandalwood country. On the other hand, they include large stretches of land which cannot be regarded as forest country, such as agricultural areas and waste sandplains. Mr. Ednie-Brown's figures have been frequently quoted as representing the areas of marketable forests, while in reality they are only estimates of the regions over which certain species of timber trees may be found growing.

With a view to arriving at more accurate data, a classification of the forest areas was begun during the year under review. Two camps of timber classifiers, working in conjunction with surveyors of the Lands and Surveys Department, executed detailed forest surveys. Both camps were in the Jarrah belt, one worked between Donnybrook and Collie and the other from Collie northwards. The work is of the nature of a stock-taking of the State's forest assets, and should yield all the data necessary regarding—

- (1) The area of virgin forest still remaining.
- (2) The area of forest that has been cut over.

The results obtained will make it possible to recommend what areas should be permanently reserved for forest purposes. Finally, the detailed information collected will pave the way towards forest working plans, which will both regulate the cutting in the virgin forests yet remaining, and also lay down the procedure and silvicultural operations necessary in order to assure the regeneration of the best species on those areas which have been cut over by saw-millers and timber hewers in the past.

*Reserves.*—The official figures relating to the areas specially reserved for forest purposes are very misleading. Thus, in Vol. 9 of the *Commonwealth Year Book* I find that 1,167,114 acres of forest have been specially reserved. One unacquainted with the facts would be led to believe that this area has been permanently reserved for forest purposes, when in point

of fact the reserves are of a purely temporary character, and a number of them carry very inferior forests. The only permanent forest reserves are three in number, and are situated in the coastal Tuart belt, as follows:—

	Acres.
East of Lake Preston and Lake Clifton, No. 7655 .. ..	7,850
Stirling Estate, No. 9528 .. ..	1,341
Stirling Estate, No. 9530 .. ..	654
Total .. ..	
	9,845

It is important that it should be clearly realised that the State boasting the largest timber industry in the Commonwealth possesses no permanent forest reserves in the forest regions which yield the whole of her export trade, viz., the Jarrah and Karri belts. This export trade has yielded to date timber to the value of £14,643,068 (see Appendix 2G). It is therefore urgently necessary that the work of classification of the forest regions be pushed on as quickly as possible, in order that the main belts of prime forests may be demarcated and permanently reserved. At present the bulk of the forests is open Crown land, and the remainder may, owing to the temporary nature of the reservation, be alienated at any time.

### FOREST WORK.

Neither staff nor funds were available for carrying out any silvicultural work. The very limited staff at my disposal was engaged for the most part in the work of collecting revenue and inspecting timber for export. The Inspecting Ranger and District Rangers, in addition, carried out a number of inspections of land which had been applied for by agriculturalists and reported as to the advisability of reserving or alienating the land in question.

The rate of growth of the principal timber species is not at present known, nor can it be definitely stated at what age the trees reach maturity. In order to arrive at these data a number of sample areas were selected throughout the Jarrah, Karri, and Tuart belts; careful measurements are being taken of the girths and height of all trees on these areas, so that re-measurement from time to time will finally yield the information required.

The regrowth in the Karri belt after clear felling is very vigorous. An example of such regrowth is to be found at Karri Hill, the old homestead block owned some fifty years ago by Mr. de Courcy Lefroy and subsequently abandoned. Measurement of the young forest that has grown up and is now forty years old showed a stand of 4,990 cubic feet to the acre. This may be regarded as very encouraging, as

it must be remembered that the area in question has received no silvicultural treatment and has been swept by fires on several occasions. Karri Hill was purchased by the State as an experimental area for this Department. Being the oldest piece of Karri regrowth, it should in time yield most valuable data.

#### FOREST FIRES.

Some serious forest fires occurred in the early part of the year. The acts and regulations controlling the setting of fires are practically a dead letter in the forest country. There is no doubt that fires are a more serious enemy than uncontrolled exploitation by sawmillers and timber hewers. Annually a great part of the forests is swept away by fires and vast quantities of young and old timber are destroyed. A thorough fire patrol organisation is necessary to fight the danger. Failing adequate preventive measures, it is only a matter of time for the forests to disappear.

#### LEGISLATION.

Alterations were made in the Timber Regulations. The principle of sale by tender of forest produce was introduced, and the choice of sawmilling areas and hewing areas has been placed in the hands of the forester instead of, as heretofore, in the hands of the sawmiller or hewing contractor. The royalty on Jarrah and Karri mill logs was raised from 1s. to 2s. per load on sawmill permit areas, while the royalty on hewn timber was raised from 2s. 6d. to 4s. per load. Though this regulation was gazetted during the year under report, it was not enforced until the 1st January, 1917. In addition, a regulation prohibiting the careless use of fire was inserted. With a view to controlling the operations of the timber hewer, a deposit of £2 is now required from each hewer before he can obtain his license. In order to prevent the traffic in branding irons and to institute a system of registration of timber workers, a uniform type of brand is now supplied by the Department and registered at head office.

The regulations as they now stand are still far from satisfactory, but their more general amendment must await a Forest Act. At present the Department is working under the provisions of the Land Act, which, for forest purposes, are entirely inadequate.

#### PLANTATION AND NURSERY WORK.\*

Ludlow plantation was extended by an area of 21 acres. Monterey pine, which has been planted for the past seven years here, and which now covers 594 acres, has not done as well as was expected. The soil is of too poor and sandy a nature for a species like Monterey pine, which requires good soil. On the other hand, the few cluster pines that have been planted here and there throughout the area have done well. Owing to the very heavy cost of clearing and preparing the ground, it was decided that this plantation should not be extended beyond the limits of the cleared and partially cleared land, and that cluster pine should in future be sown or planted in lieu of Monterey pine.

The small plantation at Hamel is situated on slightly better soil, but here again the Monterey pines are going off at the tops, showing that the conditions are not favourable to this species. The cluster pines, on the other hand, are looking healthy and well.

\*A special report was furnished on this plantation, also on future pine plantations.

*Hamel State Nursery.*—The trees raised at the nursery are enumerated in Appendix 5. Of these, 93,850 were distributed free to the public outside the metropolitan area. There is no doubt that this free distribution of trees is a mistake; not only does it cost the State a considerable sum annually, but the recipients are apt to value little what they get for nothing. The sale of trees at cost price should, as soon as possible, take the place of free distribution. The nursery suffered the loss of Mr. MacFarlane, who retired on the 30th September, after holding the position of Nursery Manager for 23 years.

*Drift Sand Fixing and Reclamation.*—The area of drift sands at the mouth of the Warren River, and which extends for a considerable distance eastwards and westwards, has for some years been a cause of grave anxiety to the farmers of the locality. The work of arresting the march of the invading sand hills was handed over to the Forest Department during the year under report. Only £100, however, was made available, and this was only supplied late in the year, so that very little could be done. A start, however, was made by the establishment of an area of 160 acres of Marram grass near the mouth of the Warren. This will constitute a nursery for the supply of plants and seeds necessary for planting and fixing the coastal dune. An annual appropriation will be necessary to enable this work to be carried out and to supply funds for the final reclamation of the sands by the sowing of cluster pine.

#### INSPECTIONS.

Inspections of the various districts were made by the writer, who also visited the Eastern States and obtained much valuable information relating to the forests and Forest Departments of South Australia, Victoria, and New South Wales. The writer was greatly indebted to the courtesy of the Ministers administering the Forest Departments of the above States, and also to the heads of departments, who gave him every facility to study the forests under their control.

#### FOREST CONFERENCE.

The annual Interstate Forest Conference was held in Adelaide at the end of May. His Excellency the Governor General presided, and the following Ministers, heads of departments, and experts were present:—

##### *New South Wales:*

The Honourable W. G. Ashford, M.L.A., Minister for Lands and Forests.

Mr. R. D. Hay, Director of Forests.

Mr. R. T. Baker, Curator and Economic Botanist of the Technological Museum, Sydney.

Mr. W. Watson, Secretary, Forests Department.

##### *Victoria:*

The Honourable T. Livingstone, M.L.A., Minister for Forests.

Mr. H. Mackay, Conservator of Forests.

##### *South Australia:*

The Honourable J. H. Vaughan, Attorney General and Commissioner of Forest Lands.

Mr. W. Gill, Conservator of Forests.

Mr. H. Corbin, Lecturer in Forestry, University of Adelaide.

##### *Western Australia:*

Mr. C. E. Lane-Poole, Conservator of Forests.

##### *Tasmania:*

The Honourable W. H. Lee, M.L.A., Premier, Chief Secretary and Minister of Education,

The following resolutions were agreed to by the Conference:—

*Resolved:*

That co-operation between the States in the matter of forest training is essential to any satisfactory scheme of forest development.

*Resolved:*

That this Conference presents the following report to the various State Governments, and recommends its consideration and adoption in order to arrive at uniformity—

1. That a sound system of training is required for all persons employed in the Forest Service.
2. That such training can be best effected by the establishment of one or more Training Schools.
3. That the syllabus of the Training Schools shall provide instruction in the following:—The foundations of silviculture; the formation and regeneration of woods; the tending of woods; the silviculture characteristics of Australian forest trees; forest protection; forest mensuration; forest utilisation; forest management; surveying; practical work in the forest; elementary botany.
4. That in order to thoroughly equip candidates for the higher positions of inspecting officers, assistant conservators, conservators or directors, a complete course of advanced training shall be provided at a University within the Commonwealth, and such University shall make proper provision for the effective training of students in theoretical and practical forestry.
5. That the University course shall include: silviculture; forest management; forest policy; forest law in Australia and other countries; forest engineering; forest utilisation; forest protection; forest botany; forest entomology; forest zoology; forest micology; chemistry; geology.

*Apprentices, Forest Workmen, Foremen, and Superintendents.*

6. That persons entering as apprentices shall pass an entrance examination in reading, writing, and arithmetic, and shall advance by stages to the position of forest workman, forest foreman, forest guard, and forest superintendent, on passing the necessary qualifying examinations. Apprentices shall be between the ages of 14 and 16 on entry, and shall serve for a period of three years before being eligible to present themselves for the position of forest workman; at the age of 21 they shall be eligible for the post of forest foreman.
7. That an employee on attaining the rank of foreman, and on proof of qualification, shall be allowed to enter for a special course of training at a Forest Training School, provided he has not exceeded the age of 25 years. Nothing in the foregoing shall debar any efficient employee, who holds a permanent position in the Forest Service of any State prior to the adoption by such State of a scheme for training employees, from presenting himself for admission to the special course of training.

*Forest Cadets, Assistant Foresters, Foresters, and Chief Foresters.*

8. That forest students shall undergo a course of training for a term of three years at a Forest Training School, and be eligible for admission on satisfactory proof of physical fitness, and by passing a prescribed entrance examination in reading, writing, mathematics (including arithmetic, algebra, and geometry), physics, chemistry, botany, geology, drawing, and one modern language to be determined upon.
9. That students at a Training School, on completing the course and passing the final examination, shall be eligible for the post of forest cadet, and after at least two years' service as cadet, for promotion to the post of assistant forester; in each case on passing a qualifying examination.
10. That any forester who has shown marked ability and efficiency shall be eligible for the post of chief forester without further examination.
11. That any member of the service after attaining the rank of forester may, on proof of marked

ability and efficiency, be admitted to the advanced course of training in forestry at a University which provides such a course.

The Conference affirms the desirableness of encouraging higher officers to study forest management and practice in Europe, America, or British India.

*Journal of Forestry.*

*Resolved:*

That it is desirable to establish an Australian Journal of Forestry, to be published half-yearly.

*Resolved:*

That the Hon. J. H. Vaughan be requested to undertake the formulation of a scheme for establishing such a Journal of Forestry, and to report to the various State Governments.

*Exchange of Bulletins.*

*Resolved:*

That it is desirable to establish a system of exchange of bulletins on technical subjects for the assistance of foresters.

*Exchange of Officers.*

*Resolved:*

That it is desirable that a system of temporary exchange of State Forest Officers be established.

*Uniformity in Nomenclature.*

*Resolved:*

That it is desirable to establish uniformity in nomenclature of indigenous species of trees.

*Resolved:*

That each State appoint a Committee to confer, and list the names of the different varieties of trees in its State; that such lists be forwarded within six months to the Minister for Forests, Victoria; that that Minister remit to each State a list of all the names so forwarded; and that he, as soon as practicable thereafter, convene a Conference of the States to finalise the nomenclature for all Australia.

*Research Work.*

*Resolved:*

That this Conference draws the attention of the Commonwealth Scientific Bureau to the omission, from its list for inquiries, of research work in connection with forest products, and recommends that special research work in that direction be undertaken.

*Fire Legislation in relation to Forests.*

*Resolved:*

That this Conference affirms the desirableness of efficient legislative control in the matter of forest fires.

*Future Conferences.*

*Resolved:*

That in the interests of Forestry it is desirable that annual Conferences of Ministers and Officers should be held.

THE TIMBER INDUSTRY.

Owing to the war and the consequent lack of shipping, the industry has been in a very depressed condition. The list of mills in Appendix 3B shows that out of 35 only 20 have worked during the year under review.

The output of forest produce will be found in Appendices 2D, 2C, and 2E; also the export and import figures in Appendices 2F and 2H.

Since 1914 the production has fallen from 378,828 to approximately 150,000 loads. There has been a fall in imports also, which has resulted in the more general use of Jarrah and Karri in the State. It is to be hoped that architects and builders will continue to use these timbers when the trade is once more normal. The superiority of Western Australian timbers over the imported article for most structural purposes has been sufficiently demonstrated.

It is stated that the rise in the sawmiller's costs during the past 10 years amounts to 57.4 per cent.

The number of timber workers employed was very small; an inspection of Appendix 3c, which sets forth the number of licenses issued, will make this clear.

#### REVENUE AND EXPENDITURE.

The revenue derived from all sources amounted to £29,820 12s. 10d. It will be found itemised in Appendix 1A.

The expenditure amounted to £9,575 3s. 2d., and will be found under various headings in Appendix 1c. The accumulated surplus of revenue over expenditure since the inception of the department amounts now to £441,332 4s. 4d. The figures for each year will be found in Appendix 1d. With the exception of the small pine plantation work, the expenditure to date has been utilised in the collection of revenue; no money has been spent on silvicultural and other forest work in the indigenous forests which are yielding the main wealth of the timber industry.

In a country like Western Australia, where the timber industry is operating over virgin uncultivated forests, the revenue derived from the industry should be utilised solely for the improvement of the forests, so that the great national capital represented by the State's forests may be handed down to future generations, not only intact, but in an improved condition. The sum of £441,332 4s. 4d. (accumulated surplus) represents a tax on a primary industry. No arguments can be advanced for the imposition of such a tax. It has been decided that the extra royalty of 1s. per load for sawn timber and 1s. 6d. per load for hewn timber will be utilised for the improvement of the areas now being cut out by the sawmillers and hewers. In order that the sums in question may be appropriated for this purpose, a Forest Act will be necessary. It is to be hoped that as time goes on, and the financial condition of the State becomes easier, that more of the revenue will go back to the forests, until finally the whole amount is used in the essential work of assuring the regeneration of the best species, not only on the areas being cut out by the sawmiller of to-day, but on the areas which the sawmiller and hewer have worked over in the past, and which, it is estimated, amount to no less than 1,500,000 acres.

#### BOTANICAL.

A forest herbarium was begun, and the collection of material was placed in the hands of District Ranger Schock. Some interesting forest species were collected, a list of which will be found in Appendix 4. Thanks are due to Dr. Stoward, Government Botanist and Plant Pathologist, who very kindly undertook the work of identifying the material.

#### SEED EXCHANGE.

With a view to establishing an exchange of seeds with other States, a collection of the seeds of our principal economic forest species was started. This work was also carried out by Mr. Schock.

#### MALLET BARK.

Owing to the war and to the fact that Germany was the main importer of Mallet Bark, the trade in this material was very depressed. A report on the available supplies of mallet showed that the position is a serious one. The raw material has been greatly over-exploited and the regulations governing the stripping of the trees have been disregarded. Finally, large areas of it have been alienated in spite of the fact that the soil it grows on is of very little use for agriculture. The remedy lies in the reservation of all available areas of Mallet and the strict enforcing of the regulations. An educational campaign among the farmers should also lead to good results; the belts of trees only require protection and slight silvicultural treatment to yield a better return than any other crop on the soil in question.

As stated above, the main market for mallet has been in Germany, where it was doubtless used in the preparation of the tan extracts which found such a ready market prior to the war. There is little doubt that tan extracts could be made in Western Australia, thus saving the leather situation, which of late years, owing to the depletion of Eastern Australian wattle supplies, has been very grave throughout Australia.

#### SANDALWOOD AND SANDAL-OIL.

The export of Sandalwood amounted to 159,569 cwts., valued at £82,268. The quantities and ports of destination will be found in Appendix 2F. West Australian sandal has not the same value as Mysore or other sandalwoods, the reason being that it has not up to now been possible to utilise it for the manufacture of standardised sandal-oil. The oil yielded by our wood is 8 to 12 per cent. below the British Pharmacopœia standard. The distillation, on a small scale, of the oil is, however, being carried out, and there were exported 1,100lbs., valued at £989, which found a market in the Eastern States.

#### PUBLICATIONS.

In 1914 Mr. D. E. Hutchins, late Conservator of Forests, British East Africa, and formerly Conservator of Forests, Cape Colony, visited Western Australia and the other States of the Commonwealth. He subsequently furnished a report to the West Australian Government, which was published under the title of "Australian Forestry."

C. E. LANE POOLE,  
Conservator of Forests.

**LIST OF APPENDICES.**

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## No. 1.

*Revenue and Expenditure.*

- A. Revenue for year ended 31st December, 1916.
- B. Trust Fund for year ended 31st December, 1916.
- C. Expenditure for year ended 31st December, 1916.
- D. Summary of revenue and expenditure since 1895.

## No. 2.

*Timber Statistics.*

- A. Production of mill timber.
- B. Production of hewn timber.
- C. Total production of timber.
- D. Round piles, poles, and beams.
- E. Mining timber and firewood.
- F. Exports.
- G. Summary of exports since 1836.
- H. Imports.

## No. 3.

*Timber Industry.*

- A. List of Concessions, Leases, and Sawmill Permits.
- B. List of mills.
- C. Return of licenses issued.

## No. 4.

*List of Herbarium Specimens collected and identified up to 31st December, 1916.*

## No. 5.

*List of Trees raised at the State Nursery.*

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## APPENDIX 1A.

Revenue for year ended 31st December, 1916.

Particulars.	£ s. d.	£ s. d.
Woodcutters' License Fees ... ..	675 8 0	
Sandalwood License Fees ... ..	6 16 0	
Timber and Mining Timber License Fees ... ..	424 2 -6	
Mallet Bark License Fees ... ..	17 7 6	
Pile and Balk License Fees ... ..	8 0 0	
Total amount received for License Fees	...	1,131 14 0
Royalty on Hewn Jarrah Sleepers ...	1,683 7 6	1,683 7 6
Royalty on Jarrah Logs ... ..	8,981 9 7	
Royalty on Karri Logs ... ..	1,874 2 2	
Royalty on Tuart Logs ... ..	135 8 0	
Royalty on Wandoo Logs ... ..	143 7 9	
Total amount received for Log Royalty	...	11,134 7 6
Royalty on Piles and Poles ... ..	1,694 2 5	
Royalty on Heart in Beams ... ..	82 1 10	
Royalty on Sandalwood ... ..	1,285 1 3	
Royalty on Firewood ... ..	29 18 9	
Royalty on Salmon Gum ... ..	4 16 7	
Royalty on Jarrah Fencing Posts ...	2 10 0	
Royalty on Blackboy ... ..	0 9 6	
Royalty on Jarrah Laths ... ..	0 2 3	
Total amount received for Royalty on Timber (exclusive of Sleepers and Log Royalty)	...	3,099 2 7
Inspection Fees—		
On Hewn Sleepers from Crown Lands	530 1 0	
On Sawn Sleepers from Crown Lands	246 4 7	
On Sawn Timber from Crown Lands	73 1 5	
On Hewn Sleepers from Private Property	739 10 7	
On Sawn Sleepers from Private Property	355 12 7	
On Sawn Timber from Private Property	43 12 4	
Total amount received for Inspection Fees	...	1,988 2 6
Branding Hammer Registration Fees	3 14 0	3 14 0
Rents from Timber Leases and Rents from Timber Tramlines	10,743 3 2	10,743 3 2
Rents from Saw Mill Sites ... ..	15 0 0	15 0 0
Tree Freight ... ..	6 1 6	6 1 6
Miscellaneous ... ..	13 5 1	13 5 1
Publications ... ..	2 15 0	2 15 0
Grand Total of Revenue ... ..	...	£29,820 12 10

## APPENDIX 1B.

Trust Fund.

Particulars.	£ s. d.	£ s. d.
Branding Hammer Deposits ... ..	14 14 0	
Hewing Deposits ... ..	80 0 0	
Saw Mill Permits ... ..	80 0 0	
Miscellaneous Refunds ... ..	0 9 10	
		£175 3 10
Survey Fees (paid to Lands and Surveys Department) ... ..	...	£602 0 0

## APPENDIX 1c.

Expenditure for year ending 31st December, 1916.

Particulars.	£ s. d.
Salaries and Allowances ... ..	8,033 18 8
Maintaining State Nursery, Pine, Wattle and Sandalwood Plantations ...	189 6 5
Incidental Expenses ... ..	1,334 16 4
Workers' Compensation ... ..	13 11 9
Reforestation ... ..	3 10 0
Total ... ..	£9,575 3 2

## APPENDIX 1D.

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
1st July, 1912, to 30th June, 1913	48,236 14 0	11,463 2 11
1st July, 1913, to 30th June, 1914	53,038 16 0	12,092 15 3
6 months, 30th June to 31st December, 1914	22,906 0 0	5,468 14 0
1st January to 31st December, 1915	45,725 13 9	8,869 15 11
1st January to 31st December, 1916	29,820 12 10	9,575 3 2
	£579,272 8 5	137,940 4 1

It will be seen from the above statement that to the 31st December, 1916, the revenue exceeded the expenditure by the large sum of £441,332 4s. 4d.

## APPENDIX 2A.

\* Annual Production for year ended 31st December, 1916.

## MAJOR FOREST PRODUCE.

## MILL LOGS.

	Loads.	Cubic feet.
Jarrah ... ..	266,081	13,304,050
Karri ... ..	37,482	1,874,100
Tuart ... ..	1,676	84,800
Wandoo ... ..	2,297	114,850
Total ... ..	307,556	15,377,800

The logs are measured on the quarter girth system, and the recovery by the mills for Jarrah is 45 per cent. ; Karri, 35 per cent. ; Tuart, 50 per cent. ; and Wandoo, 50 per cent. ; so that the above total represents in sawn timber 124,852 loads, or 6,242,600 cubic feet.

## APPENDIX 2B.

Hewn Sleepers.

	Loads.	Cubic feet.
Jarrah ... ..	14,567	728,350

NOTE.—The average recovery by the hewer is 25 per cent. of the log, the latter being measured on the quarter girth system. The above total represents 58,268 loads or 2,913,400 cubic feet in the log.

\* Mill Logs.—This statement includes all timber from Crown Lands, Sawmill Permits, Timber Leases and Timber Concessions, but does not include all the timber cut on private property.

APPENDIX 2c.  
Total Timber Production.

	In the Log.		In the Square.	
	Loads.	Cub. feet.	Loads.	Cub. feet.
Total Milling Timber	307,556	15,377,800	124,852	6,242,600
Total Hewing Timber	58,268	2,913,400	14,567	728,350
Grand Total ...	365,824	18,291,200	139,419	6,970,950

## APPENDIX 2D.

Round Poles, Piles, and Beams.  
1,832 LOADS, OR 91,600 CUBIC FEET.

## APPENDIX 2E.

\*Mining Timber and Firewood for year ended 31st  
December, 1916.

	Tons.
Wood Fuel consumed on Mines on Golden Mile	503,752
Mining Timber consumed on Mines on Golden Mile ... ..	9,467
Wood Fuel consumed on Northern Mines (Lancefield, Gwalia, Menzies, Ora Banda) ...	69,000
Mining Timber consumed on Northern Mines (Lancefield, Gwalia, Menzies, Ora Banda)	2,500
Wood Fuel consumed on Southern Cross Area (Westonia, Marvel Lock, Corinthia, Bullfinch) ... ..	65,000
Mining Timber consumed on Southern Cross Area (Westonia, Marvel Lock, Corinthia, Bullfinch) ... ..	2,000
Household wood consumed on Goldfields ...	30,000
Bakers wood consumed on Goldfields ...	3,000
Engine wood consumed on timber tramways (Firewood lines) ... ..	13,000
Sleepers consumed on wood lines, 24,634, say ...	1,000
	698,719

\*Exclusive of domestic firewood used in Perth and other towns, and mining timber used on the Collie Coalfields.

## APPENDIX 2F.

Export of Forest Produce for the year 1916.

	Quantity.	Value.
	sup. ft.	£
Timber, undressed (other)—		
United Kingdom ... ..	...	15
South Africa ... ..	19,016,400	130,901
New Zealand ... ..	700,700	4,690
Ceylon ... ..	1,516,600	11,030
Egypt ... ..	413,000	3,638
Mauritius ... ..	652,200	4,368
Portuguese East Africa ...	605,900	4,039
Commonwealth of Australia, Other States ... ..	23,625,018	161,062
	46,529,818	319,743
Spokes, Ribs, and Hubs, Undressed—		
Commonwealth of Australia, Other States ... ..	...	120
	...	120
Logs not sawn, and Spars in the rough—		
South Africa ... ..	54,000	360
	54,000	360

46,583,818 £329,223

## APPENDIX 2F—continued.

	Quantity.	Value.
Bark, Tanning—		
United Kingdom ... ..	cwt. 6,820	£ 3,191
Commonwealth of Australia, Other States ... ..	13,967	5,905
	20,787	9,096
Sandalwood—		
India ... ..	5,266	2,925
Straits Settlements ... ..	6,938	4,337
Hong Kong ... ..	132,388	66,760
China ... ..	14,857	8,168
Japan ... ..	120	78
	159,569	82,268

Total value of Forest Produce exported = £411,587.

## APPENDIX 2G.

Summary of Exports of Forest Produce since 1836.

Year.	Timber.		Sandalwood.		Mallet Bark.
	Loads.	Value.	Tons.	Value.	Value.
1836 <sup>a</sup> ...	200	£ 2,500	...	...	...
1837 ...	...	...	...	...	...
1838 ...	...	...	...	...	...
1839 ...	...	...	...	...	...
1840 ...	...	...	...	...	...
1841 ...	...	...	...	...	...
1842 ...	...	...	...	...	...
1843 ...	...	...	...	...	...
1844 ...	b	163	...	...	...
1845 ...	...	...	...	40	...
1846 ...	51	255	32	320	...
1847 ...	244	1,120	370	4,444	...
1848 ...	67	333	1,335	13,353	...
1849 ...	...	...	...	...	...
1850 ...	210	1,048	...	...	...
1851 ...	25	268	219	1,593	...
1852 ...	141	806	...	...	...
1853 ...	1,044	5,220	...	...	...
1854 ...	1,170	7,023	...	...	...
1855 ...	1,538	12,076	...	...	...
1856 ...	1,410	9,671	...	...	...
1857 ...	1,384	9,449	280	2,524	...
1858 ...	585	2,340	745	7,455	...
1859 ...	1,345	6,051	1,278	17,259	...
1860 ...	1,096	4,932	1,687	16,360	...
1861 ...	555	2,497	2,558	24,945	...
1862 ...	1,376	7,151	2,393	21,541	...
1863 ...	658	2,963	2,807	25,265	...
1864 ...	1,166	5,508	2,724	24,520	...
1865 ...	3,679	15,693	1,686	13,490	...
1866 ...	1,713	6,849	2,965	23,722	...
1867 ...	1,135	4,541	2,305	18,442	...
1868 ...	160	638	3,256	23,045	...
1869 ...	3,598	14,274	4,124	32,998	...
1870 ...	3,144	17,551	6,112	48,890	...
1871 ...	4,370	15,304	3,366	23,926	...
1872 ...	740	2,590	3,942	31,536	...
1873 ...	1,363	4,771	6,292	62,916	...
1874 ...	6,912	24,192	7,057	70,572	...
1875 ...	6,847	23,965	6,646	66,465	...
1876 ...	4,381	23,743	6,577	65,772	...
1877 ...	6,723	36,979	4,247	31,851	...
1878 ...	11,618	63,902	4,675	35,064	...
1879 ...	12,545	69,742	4,667	35,001	...
1880 ...	13,251	66,252	5,197	51,970	...
1881 ...	15,855	79,277	7,716	77,165	...
1882 ...	18,730	93,650	9,605	96,050	...
1883 ...	19,940	79,760	7,031	56,250	...
1884 ...	17,234	68,936	2,620	20,960	...
1885 ...	16,963	67,850	4,527	36,216	...
1886 ...	12,523	50,092	3,431	27,450	...
1887 ...	7,096	28,384	4,317	3,533	...
1888 ...	10,515	42,060	4,470	33,525	...
1889 ...	15,770	63,080	6,385	57,46	...
1890 ...	23,444	82,052	5,136	51,355	...

<sup>a</sup> The exports up to year 1834 consisted only of supplies to shipping of which no record is kept. <sup>b</sup> Not available.



## APPENDIX 2c—continued.

Year.	Timber.		Sandalwood.		Mallet Bark. Value.
	Loads.	Value.	Tons.	Value.	
1891 ...	25,479	£ 89,175	3,760	£ 37,600	...
1892 ...	21,653	78,419	5,716	42,870	...
1893 ...	10,259	33,888	3,893	32,160	...
1894 ...	21,274	74,804	2,784	23,430	...
1895 ...	25,105	88,146	3,851	30,863	...
1896 ...	20,912	116,420	6,848	65,800	...
1897 ...	47,866	192,451	5,852	49,480	...
1898 ...	81,723	326,195	4,349	31,812	...
1899 ...	138,271	553,198	4,084	29,719	...
1900 ...	114,508	458,461	5,095	39,038	...
1901 ...	143,012	572,354	8,864	73,931	...
1902 ...	125,135	500,533	7,995	61,771	...
1903 ...	154,969	619,705	4,406	37,913	859
1904 ...	161,446	654,949	4,510	25,417	32,876
1905 ...	174,190	689,943	5,521	38,817	154,087
1906 ...	c 176,614	708,993	8,848	70,958	140,720
1907 ...	c 128,191	511,923	9,212	65,999	98,773
1908 ...	c 197,390	813,591	9,564	77,668	79,934
1909 ...	c 216,609	867,419	4,805	37,456	59,633
1910 ...	c 241,482	972,698	8,228	70,775	93,733
1911 ...	c 248,990	986,341	6,907	65,506	83,470
1912 ...	c 225,942	903,396	3,154	27,533	49,094
1913 ...	c 272,397	1,089,481	6,260	47,589	47,377
1914 a ...	c 125,594	502,153	4,702	39,800	18,197
1915 b ...	c 199,370	808,392	8,375	78,926	6,127
1916 ...	77,640	320,223	7,978	82,268	9,096
Total ...	3,637,594	14,643,068	300,345	2,576,347	873,976

a Six months ended 30th June. b Year ended 30th June. c Approximate figures only.

## APPENDIX 2H.

Imports of Forest Produce for year ended 31st December, 1916.

Articles and Countries from whence Imported.	Quantity.	Value.
Timber, Dressed, N.E.I.—	sup. ft.	£
United States ...	927	1,519
Commonwealth of Australia, Other States ...	184,022	3,353
	184,949	4,872
For making Boxes, or Doors, being cut into shape, and dressed, or partly dressed—		
United Kingdom ...	8,600	212
United States ...	2,700	34
Straits Settlements ...	2,200	49
Ceylon ...	700	13
Sweden ...	2,800	19
Commonwealth of Australia, Other States ...	75,068	1,069
	92,068	1,396
Undressed, cut into size for making boxes—		
United Kingdom ...	3,400	79
Straits Settlements ...	215,600	1,122
Sweden ...	58,700	905
	277,700	2,106
Logs, not sawn, spars in the rough—		
United Kingdom ...	400	4
Java ...	300	3
	700	7
New Zealand White Pine—		
New Zealand ...	331,500	2,770
Commonwealth of Australia, Other States ...	78,509	1,118
	410,009	3,888

## APPENDIX 2H—continued.

Articles and Countries from whence imported.	Quantity.	Value.
Timber, undressed, in sizes less than 7 x 2½in.—	sup. ft.	£
United Kingdom ...	15,800	142
United States ...	961,000	7,954
Japan ...	34,300	613
India ...	11,400	257
Straits Settlements ...	51,100	501
New Zealand ...	95,600	1,379
	1,169,200	10,846
Undressed, in sizes 7 x 2½in. and upwards, and less than 12 x 6in.—		
United Kingdom ...	21,100	119
United States ...	1,320,700	10,537
Japan ...	3,300	46
India ...	3,600	100
Straits Settlements ...	12,800	135
New Zealand ...	86,500	1,155
	1,448,000	12,092
Undressed, in sizes 12 x 6in., and over—		
United States ...	1,154,100	6,234
India ...	97,900	3,586
Straits Settlements ...	400	4
New Zealand ...	33,700	477
Commonwealth of Australia, Other States ...	643,257	11,370
	1,929,357	21,671
Veneers—three-ply—		
United Kingdom ...	2,000	127
United States ...	13,600	547
Japan ...	3,600	316
Straits Settlements ...	400	25
	19,600	1,015
Total, Super. feet...	5,531,583	...
Architraves, Mouldings, etc.—	No.	
Commonwealth of Australia, Other States ...	...	1,107
	...	1,107
Bent or cut into shape, dressed, or partly dressed, N.E.I.—		
United Kingdom ...	...	1
United States ...	...	23
	...	24
Hubs, Elm—		
United States ...	727	81
	727	81
Hubs, other—		
Commonwealth of Australia, Other States ...	178	29
	178	29
Laths and Blinds—		
Commonwealth of Australia, Other States ...	...	145
	...	145
Laths, N.E.I.—		
United States ...	423,270	336
Commonwealth of Australia, Other States ...	5,500	10
	428,770	346

APPENDIX 2H.—*continued.*

Articles and Countries from whence Imported.	Quantity.	Value.
Picture and Room Mouldings—	No.	£
United Kingdom ... ..	...	83
United States ... ..	...	1,152
Norway ... ..	...	276
Italy ... ..	...	70
Sweden ... ..	...	59
	...	1,640
Rims and Felloes, of Hickory, in the rough—		
United States ... ..	...	260
	...	260
Rims, N.E.I.—		
Commonwealth of Australia, Other States ... ..	781	264
	781	264

APPENDIX 2H.—*continued.*

Articles and Countries from whence imported.	Quantity.	Value.
Shafts, Poles and Bars—	No.	£
United States ... ..	...	159
Commonwealth of Australia, Other States ... ..	...	897
	...	1,056
Spokes, dressed, not Hickory—		
Commonwealth of Australia, Other States ... ..	50,860	1,004
	50,860	1,004
Spokes, dressed, Hickory—		
United States ... ..	16,562	170
Commonwealth of Australia, Other States ... ..	2,250	88
	18,812	258
Total, Value ... ..	...	£64,107

## APPENDIX 3A.

*Sawmill Permits, Concessions, and Leases.*

The following Return shows the Sawmill Permits, Concessions, and Leases in existence up to the 31st December, 1916 :—

## CONCESSIONS.

Concessionaire.	No.	Locality.	Term.	Original Area.	Present Area.
Millars' T. & T. Co., Ltd. ...	12/0	Cockburn Sound ...	1-1-1899 to 31-12-1901 ; 1-1-1902 to 31-12-1915 ; 1-1-1916 to 31-12-1929	250,000	250,000
Millars' T. & T. Co., Ltd. ...	12/1	Canning ... ..	1-1-1893 to 31-12-1924 ...	100,000	82,750
Millars' T. & T. Co., Ltd. ...	12/2	Sussex ... ..	15-1-1883 to 14-1-1925 ...	46,000	45,389
			Total ... ..	396,000	378,139

## LEASES.

Lessee.	No.	Locality.	Term.	Original Area.	Present Area.
Ainslie, James ... ..	145/113	Nelson ... ..	1-1-1899 to 31-12-1923 ...	4,480	4,389
Ainslie, James ... ..	149/113	Nelson ... ..	1-1-1899 to 31-12-1923 ...	4,480	4,092
Ainslie, James ... ..	150/113	Nelson ... ..	1-1-1899 to 31-12-1923 ...	4,480	3,532
Millars' T. & T. Co., Ltd. ...	186/113	Wellington ... ..	1-1-1899 to 31-12-1923 ...	27,000	16,012
Millars' T. & T. Co., Ltd. ...	227/113	Wellington ... ..	1-1-1901 to 31-12-1925 ...	4,480	2,743
Millars' T. & T. Co., Ltd. ...	228/113	Wellington ... ..	1-1-1901 to 31-12-1925 ...	4,480	4,130
Millars' T. & T. Co., Ltd. ...	229/113	Wellington ... ..	1-1-1901 to 30-12-1925 ...	4,480	3,962
Millars' T. & T. Co., Ltd. ...	230/113	Wellington ... ..	1-1-1901 to 31-12-1925 ...	4,480	4,480
Good, Frederick Daniel... ..	244/113	Murray ... ..	1-7-1899 to 30-6-1924 ...	17,280	13,259
Good, Frederick Daniel... ..	257/113	Nelson ... ..	1-10-1899 to 30-9-1924 ...	33,280	28,876
Millars' T. & T. Co., Ltd. ...	261/113	Murray ... ..	1-10-1899 to 30-9-1924 ...	58,270	22,937
The Timber Corporation, Ltd. ...	268/113	Nelson ... ..	1-10-1899 to 30-9-1924 ...	49,920	34,028
Wittenoom, Edward Horne ...	269/113	Wellington ... ..	1-10-1899 to 30-9-1924 ...	5,000	2,080
Macmurtrie, Wm. ... ..	288/113	Wellington ... ..	1-7-1900 to 30-6-1925 ...	36,960	19,409
Ainslie, James ... ..	291/113	Wellington ... ..	1-1-1901 to 31-12-1925 ...	17,920	17,319
Millars' T. & T. Co., Ltd. ...	296/113	Wellington ... ..	1-1-1900 to 31-12-1924 ...	11,520	4,146
Millars' T. & T. Co., Ltd. ...	297/113	Wellington ... ..	1-1-1900 to 31-12-1924 ...	13,440	12,771
Ainslie, James ... ..	299/113	Murray ... ..	1-7-1900 to 30-6-1925 ...	19,840	18,795
McNeil, Alexander James ...	309/113	Wellington ... ..	1-4-1901 to 31-3-1926 ...	21,310	793
McNeil, Alexander James ...	310/113	Wellington ... ..	1-4-1905 to 31-3-1926 ...	9,600	3,881
Munro, Alexander Clark ...	311/113	Wellington ... ..	1-7-1901 to 30-6-1926 ...	1,920	1,205
Wittenoom, Edward Horne ...	322/113	Murray and Wellington	1-4-1902 to 31-3-1927 ...	44,800	20,000
Wittenoom, Edward Horne ...	325/113	Wellington ... ..	1-4-1902 to 31-3-1927 ...	1,280	1,202
Smith, Henry Teesdale ...	330/113	Murray ... ..	1-7-1902 to 30-6-1927 ...	10,240	7,805
Smith, Henry Teesdale ...	331/113	Murray ... ..	1-1-1903 to 31-12-1927 ...	9,600	7,200
			Total ... ..	420,532	259,042

## APPENDIX 3A.—continued.

## Sawmill Permits, Concessions, and Leases.—continued.

## SAW MILL PERMITS.

Permit Holder.	No.	Locality.	Term.	Original Area.	Present Area.
Bunning, Robert ... ..	8/11	Wellington ... ..	1-10-1910 to 30-9-1916 ...	4,700	4,700
Bunning Bros. ... ..	9/11	Wellington ... ..	1-10-1906 to 30-9-1916 ...	10,000	10,123
Preston Valley Saw Mills, Ltd.	10/11	Nelson ... ..	1-1-1907 to 31-12-1916 ...	10,000	19,800
Swan Saw Mills, Ltd. ... ..	13/11	Preston ... ..	1-7-1907 to 30-6-1917 ...	2,633	2,633
Swan Saw Mills, Ltd. ... ..	14/11	Preston ... ..	1-4-1907 to 31-3-1917 ...	19,000	9,000
Bunning, Robert ... ..	15/11	Wellington ... ..	1-4-1907 to 31-3-1917 ...	5,300	5,300
Adelaide Timber Co., Ltd. ...	16/11	Wellington ... ..	1-10-1907 to 30-9-1917 ...	12,000	15,775
Swan Saw Mills, Ltd. ... ..	19/11	Wellington ... ..	1-7-1908 to 30-6-1918 ...	1,000	1,000
Bunning Bros., Ltd. ... ..	25/11	Wellington ... ..	1-8-1908 to 31-7-1918 ...	10,000	10,000
South-West Timber Hewers' Co-operative Society	27/11	Flora and Fauna Reserve, Collie	1-1-1909 to 31-12-1918 ...	20,001	19,706
Port & Co., Ltd. ... ..	34/11	Murray ... ..	1-7-1910 to 30-6-1920 ...	28,510	28,510
Timber Corporation, Ltd. ...	35/11	Nelson ... ..	1-10-1909 to 30-9-1919 ...	6,800	6,800
Bunning Bros., Ltd. ... ..	36/11	Wellington ... ..	1-4-1907 to 31-3-1917 ...	10,000	10,000
Lewis, Francis Jas.; Reid, F.W.S.	37/11	Wellington ... ..	1-1-1910 to 31-12-1919 ...	6,000	19,730
Wilgarrup Karri and Jarrah Co., Ltd.	42/11	Nelson ... ..	1-4-1910 to 31-3-1920 ...	23,000	23,000
Buckingham Bros. ... ..	44/11	Wellington ... ..	1-7-1910 to 30-6-1920 ...	17,960	17,960
South-West Timber Hewers' Society	60/11	Wellington ... ..	1-4-1912 to 31-3-1922 ...	38,000	38,000
The Kauri Timber Co., Ltd. ...	61/11	Nelson ... ..	1-1-1912 to 31-12-1921 ...	58,000	57,910
Bunning, Robert ... ..	63/11	Wellington ... ..	1-4-1912 to 31-3-1922 ...	8,000	8,006
South-West Timber Hewers' Society	69/11	Murray ... ..	3-4-1913 to 2-4-1918 ...	4,997	4,997
Trees, Ltd. ... ..	71/11	Wellington ... ..	1-4-1914 to 31-12-1923 ...	20,028	20,028
Steele, F. W. ... ..	72/11	Wellington ... ..	1-7-1914 to 30-6-1924 ...	1,500	1,500
Minister for Works and Trading Concerns	73/11	Palgarup ... ..	1-1-1915 to 31-12-1924 ...	7,000	7,000
Whittaker Bros. ... ..	76/11	Murray ... ..	1-7-1915 to 30-6-1925 ...	20,000	20,000
Denmark Timber Co., Ltd. ...	77/11	Denmark ... ..	... ..	31,000	31,000
Commissioner of Railways ...	78/11	Dwellingup ... ..	1-7-1915 to 30-6-1925 ...	81,500	81,236
Minister for Works and Industries	79/11	Murray ... ..	1-10-1915 to 30-9-1925 ...	38,690	33,690
Minister for Works and Industries	80/11	Wellington ... ..	1-10-1915 to 30-9-1925 ...	25,740	25,740
Minister for Works and Industries	81/11	Murray ... ..	1-10-1915 to 30-9-1925 ...	25,878	25,878
Minister for Works and Industries	82/11	Wellington ... ..	1-10-1915 to 30-9-1925 ...	4,750	8,000
Buckingham Bros. ... ..	83/11	Wellington ... ..	1-7-1916 to 30-6-1926 ...	30,000	25,000
Whittaker Bros. ... ..	84/11	Murray ... ..	1-1-1916 to 31-12-1925 ...	15,350	15,430
Minister for Works and Industries	85/11	Nelson ... ..	1-7-1916 to 30-6-1926 ...	78,000	78,837
Minister for Works and Industries	86/11	Nelson ... ..	1-7-1916 to 30-6-1926 ...	143,000	142,736
Westralian Powell Wood Process, Ltd.	87/11	Nelson ... ..	... ..	15,000	15,000
Westralian Powell Wood Process, Ltd.	88/11	Nelson ... ..	... ..	10,000	10,000
Wandoo Timber Co., Ltd. ...	89/11	Wellington ... ..	1-10-1916 to 30-9-1922 ...	37,000	37,000
			Total ... ..	880,337	896,025

			Original Area.	Present Area.
Concessions ... ..	Total Areas ...	396,000	378,129	
Leases ... ..	Total Areas ...	420,532	259,042	
Saw Mill Permits ... ..	Total Areas ...	880,337	896,025	
Grand Total ... ..		1,696,869	1,533,196	

APPENDIX 3B.—List of Sawmills.

Name of Sawmill and District.	Type of Mill.	Horse Power of Mill.	Average distance from stump to Landing.	Average distance from Landing to Mill.	Distance from Mill to Main Line Siding.	Distance from Siding to nearest Port.	Output in loads per day.	Per cent. Recovery.	Rate per ton on sawn timber to Port of shipment.	Remarks.
Lewis & Reid, Collie ...	Twin Saws ...	32	M. 1	M. 2	M. 6	M. 38	16½	42½	s. 6	
Bunning Bros., Collie ...	do.	75	1	5	6	48	21½	46	7	
Adelaide Timber Co., Wilga ...	do.	24	2	No bush landing	0	57	11	44	8	Closed down.
Kauri Timber Co., Barrabup ...	Vertical	90	1	16	7	34	45	44	6	
Kauri Timber Co., Ellis Creek	Band saw	85	1	5-6	15	34	40	44	10	
Wilgarrup Karri and Jarrah Co., Jarnadup ...	Vertical Saw	75	0	5	0	93	39	39-30	9	do.
Nelson Co-operative Timber Society, Palgarrup	Twin Saws ...	45	No landing	No landing	6	77	20	50	5	do.
Bunning Bros., Argyle ...	do.	50	1	6	0	21	14	43	4	do.
Preston Valley Sawmills, Noggerup ...	do.	36	0	4	0	48	20	43	7	do.
Swan Saw Mills, Lowden	do.	48	1	6	1	35	30	44	8	do.
Donnybrook Sawmills, Donnybrook ...	do.	25	1	6	1	26	4	44	5	do.
Buckingham Bros., Muja	do.	26	1	3	0	53	10	51½	2	Working on private property.
Lion Sawmills, Lion Mill	Band Saw	1	1	7	0	37	20	...	7	do.
Whittaker Bros., North Dandalup	Twin Saws ...	60	0	4	3	46	31	53	10	
J. H. Patterson, Amphion ...	do.	14	1	No bush landing	1	91	8	45	6	
State Mill, Wuraming ...	do.	30	1	do.	1	97	19½	47	11	Closed down.
Railway Department Mill No. 2, Dwellingup	do.	100	1	4	5	81	49	47	10	Not exported.
Port & Co., Pindalup ...	Horizontal ...	30	1	2	Alongside Main Line	95	13	51	8	
State Mill, Manjimup ...	Vertical and Twin	100	0	1-12	3	90	Not supplied	Not supplied	10	
State Mill, Pemberton, No. 2	do.	100	0	1-12	17	93	do.	do.	10	
State Mill, Pemberton, No. 3	Twin Saws ...	100	0	1-12	17	93	do.	do.	10	
Smith's Mill, Winnigup Road	Circular Saw	10	*0	...	3	62	20 (per month)	70	11	Closed down.
Ryan's Mill, Jayes Road	do.	12	*0	...	2	67	6	40	4	do.
S.W. Timber Hewers' Co-operative Society, Ltd., Holyoake	...	...	0	7	On Main Line	78	40	48	9	
Denmark Timber Co., Denmark ...	Twin Saws ...	16	3	Landing at Mill	2	30	10	50	...	Does not export Jarrah. Cutting for fruit cases and local orders. Cutting on private property. Closed down.
C. Firms, Serpentine ...	do.	13	...	6-15	5	52	8	...	7	
Timber Corporation, Ltd., Greenbushes	Vertical Saw	60	0	16	2	30	45	40 to 45	1	
Millar's Timber and Trading Co., Jarrahdale	Twin Saws, 2 Mills	...	0	6	7	30	80	44	3	
Millar's Timber and Trading Co., Wellington	Twin Saws	...	0	6	13	9	60	44	2	
Do.	Vertical Saw	...	0	2	9	38	25	44	6	do.
Millar's Timber and Trading Co., Canning ...	Twin Saw, 2 Mills	...	0	4	On Main Line	68	26	44	9	do.
Millar's Timber and Trading Co., Marrinup ...	Twin Saws	...	0	8	9	37	65	44	10	do.
Millar's Timber and Trading Co., Yarloop ...	Vertical and Twin Saw combined	...	0	8	28	37	50	44	5	do.
Millar's Timber and Trading Co., Nanga Brook	Twin Saws	...	0	12	6	26	85	44	11	do.
Millar's Timber and Trading Co., Mornington	Vertical Saw	...	0	4	12	37	68	44	10	do.
Do.	Twin Saws ...	...	0	4	12	37	68	44	10	do.
Millar's Timber and Trading Co., Kirrup, East	Vertical and Twin Saws	...	0	7	On Main Line	28	30	44	1	do.
Millar's Timber and Trading Co., Jarrahwood	Twin Saws	...	0	...	...	...	10	50-60	...	Cutting Tuart and Wandoo.
Railway Department, Midland Junction ...	Band Saw ...	80-100	...	...	...	...	...	...	...	

\* Stump to Mill.

## APPENDIX 3c.

Return of Licenses issued during the year 1916.

January	...	...	...	535
February	...	...	...	281
March	...	...	...	268
April	...	...	...	234
May	...	...	...	233
June	...	...	...	229
July	...	...	...	215
August	...	...	...	225
September	...	...	...	275
October	...	...	...	292
November	...	...	...	331
December	...	...	...	402
Total	...	...	...	3,520

## APPENDIX 4.

List of Herbarium Specimens collected during 1916, and identified by Dr. Stoward.

Botanical Name.	Local Name.	Botanical Name.	Local Name.
<i>Acacia cochlearis</i> , Wendl.	Wattle (Quanut)	<i>Euc. patens</i>	Blackbutt
<i>Acacia cyanophylla</i> , Lindl.	Silver Wattle	<i>Euc. redunca</i> , Schau.	White Gum (Wandoo)
"	Black Wattle	<i>Euc. rudis</i> , Endl.	Flooded Gum
<i>Acacia decipiens</i> , R. Br.	Prickly Wattle	<i>Euc. affinis E. rudis</i> , Endl.	Spotted Gum
<i>Acacia divergens</i> , Benth.	"	<i>Euc. sp.*</i>	Marluk
<i>Acacia obscura</i> , D.C.	Wattle	<i>Festuca littoralis</i> , Lab.	Grass
<i>Acacia pulchella</i> , R. Br.	Prickly Acacia	<i>Gastrolobium spinosum</i> , Benth.	Blue Bush (Poison)
<i>Acacia urophylla</i> , Benth.	Wattle	<i>Hakea sp. affinis H. eriantha</i> , R. Br.	"
<i>Acacia sp.</i>	Acacia (Blue Bush)	<i>Hakea glabella</i> , R. Br.	Prickly Pear
<i>Agonis flexuosa</i> , Schau.	Peppermint	<i>Hakea glabella</i> , var. R. Br.	"
<i>Agonis juniperina</i> , Schau.	Cedar	<i>Hakea oleifolia</i> , R. Br.	Dungyin
<i>Agonis linearifolia</i> , Schau.	Tea Tree	<i>Helichrysum cordatum</i> , D.C.	"
<i>Agonis parviceps</i> , Schau.	Spearwood	<i>Hovea elliptica</i> , D.C. (typical form)	Blue Bush
<i>Albizia lophantha</i> , Benth.	Swamp Wattle	<i>Hovea elliptica</i> , D.C. (white-flowered form)	"
<i>Banksia attenuata</i> , R. Br.	Banksia	<i>Jacksonia sp.</i>	Stinkwood
<i>Banksia sp.</i>	River Banksia	<i>Kunzea ericifolia</i> , var. <i>glaborior</i>	Tea Tree
<i>Banksia ilicifolia</i> , R. Br.	Banksia	<i>Kunzea micrantha</i> , Schau.	"
<i>Banksia grandis</i> , Willd.	Bull Banksia	<i>Kunzea recurva</i> , Schau.	"
<i>Banksia Menziesii</i> , R. Br.	Banksia	<i>Leptospermum ellipticum</i> , Endl.	"
<i>Boronia elatior</i> , Benth.	Boronia (Red)	<i>Leptospermum firmum</i> , Benth.	"
<i>Bossiaea aquifolium</i> , Benth.	Netic, Karri Thicket, Water Bush	<i>Leucopogon Richea</i> , R. Br.	"
<i>Bossiaea kinophylla</i> , R. Br.	"	<i>Leucopogon Capilellatus</i> , D.C.	Tea Tree
<i>Calythrix angulata</i> , Lindl.	"	<i>Logania longifolia</i> , R. Br.	Blister Tree
<i>Candallea tetrandra</i> , Lindl.	Candallea	<i>Melaleuca thymoides</i> , Labill.	Tea Tree (Shrub)
<i>Casuarina decusata</i> , Benth.	Sheaok	<i>Melaleuca scabra</i> , R. Br.	"
<i>Casuarina Fraseriana</i> , Miq.	"	<i>Melaleuca sp.</i>	Tea Tree (Paper Bark)
<i>Casuarina glauca</i> , Sieb.	Creek or River Oak	<i>Melaleuca raphiophylla</i> , Schau.	Round Leaf Paper Bark
<i>Casuarina Huegeliana</i> , Miq.	Sheaok	<i>Melaleuca viminea</i> , Lindl.	Tea Tree
<i>Choretrum eteniflorum</i> , R. Br.	"	<i>Melaleuca microphylla</i> (?)	Paper Bark
<i>Chorileona hirsuta</i> , Benth.	Hazel	<i>Nyctia floribunda</i> , R. Br.	Christmas Tree
<i>Crocea angustifolia</i> , Turcz.	Croyia	<i>Olea phyllantha</i> , R. Br.	Shrub
<i>Darwinia citriodora</i> , Benth.	"	<i>Olearia axillaris</i> , F.v.M.	"
<i>Daviesia cordata</i> , Sm.	Shrub	<i>Oxylobium Callistachys</i> , Benth.	W.A. Willow
<i>Dryandra floribunda</i> , R. Br.	Prickly Banksia	<i>Oxylobium parviflorum</i> , Benth.	Box "Poison"
<i>Dodonea attenuata</i> , A. Cunn.	"	<i>Persoonia elliptica</i> , R. Br.	Native Plum
<i>Euc. cornuta</i> , Lab.	Yate	<i>Persoonia longifolia</i> , R. Br.	Native Cherry
<i>Euc. calophylla</i> , D.C.	Red Gum	<i>Phebalium argenteum</i> , Sm.	Blister Tree
<i>Euc. diversicolor</i> , F.v.M.	Karri	<i>Pimelea clavata</i> , Labill.	Banjine
<i>Euc. foecunda</i> , Schau., var. <i>loxophleba</i> Benth., Maiden.	York Gum	<i>Pimelea rosea</i> , R. Br.	Pink Banjine
<i>Euc. marginata</i> , Sm.	Jarrah	<i>Pimelea spectabilis</i> , Lindl.	Banjine
<i>Euc. megacarpa</i> , F.v.M.	Blue Gum, White Gum, "Rose of the West"	<i>Spirritum globulosum</i> (Lab.), Benth.	"
<i>Euc. Oldfieldii</i> , F.v.M., Forma	Salmon White Gum	<i>Trymalium Dillardieri</i> , Fenze.	Hazel
<i>Euc. Oldfieldii</i> , F.v.M., var. <i>Drummondii</i> , Maiden	Flooded Gum	<i>Viminaria denudata</i> , R. Br.	Stinkwood
		<i>Xylometum occidentale</i>	Native Pear
			Canbery

\* This variety has an affinity to *Euc. decipiens*, var. *angustifolia*.

## APPENDIX 5.

Trees raised at Hamel State Nursery for Distribution during the year 1916.

Botanical Name.	Common Name.	No.	Botanical Name.	Common Name.	No.
<i>Acacia Baileyana</i>	Cootamundra Wattle	1,540	<i>Grevillea robusta</i>	Silky Oak	648
<i>Acacia decurrens</i>	Black Wattle	2,714	<i>Lagunaria Patersonii</i>	Pyramid Tree	711
<i>Acacia dealbata</i>	Silver Wattle	1,978	<i>Laurus camphora</i>	Camphor	2,238
<i>Acacia Melanozydon</i>	Blackwood	484	<i>Pinus insignis</i>	Monterey Pine	138,921
<i>Acacia podalyfolia</i>	Wattle	242	<i>Pinus pinaster</i> (syn. <i>maritima</i> )	Cluster or Maritime Pine	5,564
<i>Agonis flexuosa</i>	Peppermint	80	<i>Pitiosporum undulatum</i>	Cheesewood	1,470
<i>Araucaria Bidwilli</i>	Bunya-Bunya	28	<i>Phoenix dactylifera</i>	Date Palm	342
<i>Ceratonia siliqua</i>	Carob Bean	3,340	<i>Platanus orientalis</i>	Plane Tree	2,484
<i>Cupressus macrocarpa</i>	Monterey Cypress	7,000	<i>Robinia pseudo acacia</i>	False Acacia	3,198
<i>Cupressus sempervirens</i>	Common Cypress	5,254	<i>Melia Azedarach</i>	White Cedar, Neem Tree, Cape Lilac	3,922
<i>Cupressus torulosa</i>	Nepal Cypress	1,848	<i>Sterculia acerifolia</i>	Flame Tree	676
<i>Erythrina indica</i>	Coral Tree	300	<i>Sterculia diversifolia</i>	Kurrjajong	4,200
<i>Eucalyptus cornoalje</i>	Sugar Gum	9,644	<i>Schinus molle</i>	Pepper Tree	8,441
<i>Eucalyptus ficifolia</i>	Red Flowering Gum	4,495	<i>Tristania conferta</i>	White Box	216
<i>Eucalyptus globulus</i>	Blue Gum	4,156	<i>Thuja occidentalis</i>	Arbor vitae	1,012
<i>Eucalyptus rudis</i>	Flooded Gum	966			
<i>Ficus Australis</i>	Port Macquarie Fig	1,200			
<i>Ficus macrophylla</i>	Moreton Bay Fig	988			
				Total No. of trees raised	220,300

Of the 220,300 trees raised at the Nursery, 93,850 were distributed free to the public outside the metropolitan area.