

1927.

Clark in Charge.

WESTERN AUSTRALIA.

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# REPORT

ON THE OPERATIONS OF

# THE FORESTS DEPARTMENT

FOR THE

Year ended 30th June, 1927.

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

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[FIRST SESSION OF THE THIRTEENTH PARLIAMENT.]

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PERTH :

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

1927.

Forests Department,

Perth, 2nd September, 1927.

*The Honourable Minister for Forests.*

Sir,

I have the honour to transmit, herewith, my Report on the operations of the Department for the year ended 30th June, 1927.

I have the honour to be,

Sir,

Your obedient servant,

S. L. KESSELL,

Conservator of Forests.

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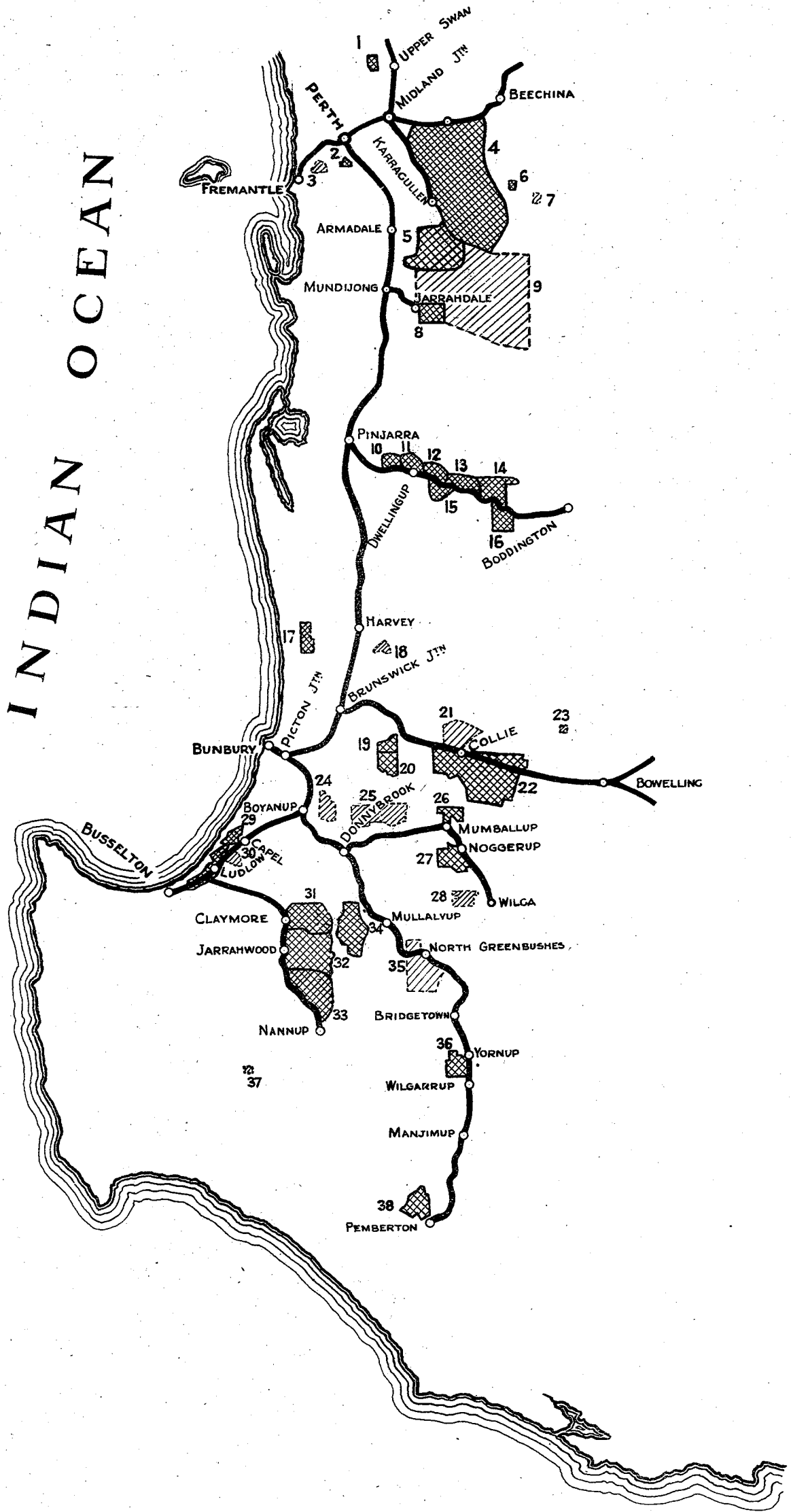
## OF AREAS UNDER WORKING PLANS or for which Working Plans are in course of preparation.

NOT TO SCALE.

### REFERENCE.

Reference No.	Working Plan.	Working Circle.	Species.
1	Working Plan No. 8 ... ..	Gnangara ... ..	Pines
2	Working Plan No. 10 ... ..	South Perth ... ..	Pines
3	Working Plan No. 19 ... ..	Applecross ... ..	Pines
4	Working Plan No. 1 ... ..	Mundaring ... ..	Jarrah and Pines
5	Working Plan No. 38 ... ..	Churchman's Brook ... ..	Jarrah
6	Working Plan No. 36 ... ..	Beraking ... ..	Pines
7	... ..	Patten's ... ..	Pines
8	Working Plan No. 15 ... ..	Jarrahdale (Concession) ... ..	Jarrah
9	... ..	Jarrahdale ... ..	Jarrah
10	Working Plan No. 17 ... ..	North Marrinup ... ..	Jarrah
11	Working Plan No. 16 ... ..	Dwellingup ... ..	Jarrah
12	Working Plan No. 22 ... ..	Holyoake ... ..	Jarrah
13	Working Plan No. 23 ... ..	Inglehope ... ..	Jarrah
14	Working Plan No. 28 ... ..	Pindalup ... ..	Jarrah
15	Working Plan No. 25 ... ..	Plavin's ... ..	Jarrah
16	Working Plan No. 26 ... ..	Wuraming ... ..	Jarrah
17	Working Plan No. 21 ... ..	Myalup ... ..	Pines
18	... ..	Harvey Weir ... ..	Pines
19	Working Plan No. 14 ... ..	Worsley ... ..	Jarrah
20	Working Plan No. 13 ... ..	Potter's Gorge ... ..	Jarrah
21	... " ... " ... 35 ...	Harris River ... ..	Jarrah
22	Working Plan No. 3 ... ..	Collie ... ..	Jarrah and Pines
23	Experimental Area ... ..	Bowelling ... ..	Pines
24	<i>Working Plan No. 4</i> ... ..	Boyanup ... ..	Jarrah
25	... " ... " ... 18 ...	Lowden ... ..	Jarrah
26	Working Plan No. 11 ... ..	Mumballup ... ..	Jarrah
27	Working Plan No. 12 ... ..	Noggerup ... ..	Jarrah
28	... ..	Wilga ... ..	Jarrah
29	Working Plan No. 2 ... ..	Ludlow (Stirling Block) ... ..	Tuart and Pines
30	... ..	Ludlow (Coolilup Block) ... ..	Pines
31	Working Plan No. 29 ... ..	Upper Capel ... ..	Jarrah
32	Working Plan No. 30 ... ..	Harrington ... ..	Jarrah
33	Working Plan No. 32 ... ..	Sussex ... ..	Jarrah
34	Working Plan No. 34 ... ..	Mullalyup ... ..	Jarrah
35	... " ... " ... 33 ...	Greenbushes ... ..	Jarrah
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38	Working Plan No. 9 ... ..	Big Brook ... ..	Karri

# INDIAN OCEAN



LIST OF BOTANICAL NAMES OF LOCAL  
SPECIES REFERRED TO IN THIS REPORT.

Jarrah—*Eucalyptus marginata*.

Karri—*Eucalyptus diversicolor*.

Wandoo—*Eucalyptus redunca* var. *elata*.

Tuart—*Eucalyptus gomphocephala*.

Sandalwood—*Santalum spicatum*.

North-West Sandalwood—*Santalum lanceolatum*.

Brown Mallet—*Eucalyptus astringens*.

Blackboy—*Xanthorrhoea Preissii*.

## REPORT OF THE FORESTS DEPARTMENT FOR THE YEAR ENDED 30th JUNE, 1927.

### CHAPTER I.

#### SUMMARY.

##### THE TIMBER TRADE.

The total production of sawn and hewn timber for the year was 21,377,317 cubic feet, having an estimated value of £2,780,000. Of this total 8,797,055 cubic feet were used locally and the remainder, valued at £1,659,876, was exported, the largest buyers being the Eastern States of Australia.

Sixty-nine per cent. of the total output was obtained from Crown lands. The volume of sawn timber produced by 68 mills operating on Crown lands was 13,000,000 cubic feet. The volume of hewn timber obtained from Crown lands was 1,764,200 cubic feet, representing 23 per cent. of the total output of hewn timber.

The total area of Crown lands held under timber concessions, timber leases, and permits for the cutting and removal of timber was 1,834,800 acres.

The volume of sawn and hewn timber inspected by officers of the Department on behalf of purchasers was 10,118,790 cubic feet.

The value of timber imported, principally softwood, was £162,193.

##### REVENUE.

The gross revenue of the Department amounted to £222,507, of which £46,074 was derived from sandalwood.

##### STATE FORESTS.

The area added to State Forests during the year amounted to only 32,685 acres.

##### REFORESTATION.

Eleven new Working Plans, covering 357,486 acres, were approved, making a total of 760,200 acres under Working Plans.

The control of exploitation by tree marking is now in operation in 22 centres in the Jarrah bush. The area cut over under tree marking conditions for sawmilling was 24,600 acres, and for hewing 11,800 acres.

Eighty hewers have been kept in constant employment, under local hewing permits, working up faulty and damaged trees in advance of regeneration cleaning.

The area of Jarrah forest silviculturally treated under the Group Selection system for the regeneration of Jarrah was 6,180 acres. In addition, 1,050 acres of Jarrah were treated under the Clear Felling system, chiefly for the production of mining timber at Collie, and a satisfactory crop of seedling and coppice regrowth was secured.

One thousand four hundred and eighty acres of Karri forest recently cut over for sawmilling were treated for natural regeneration under the Clear Felling system, and 2,890 acres now await the final burn.

The crop of seed now ripening will enable regeneration operations on this area to be finished during the coming summer.

In the Tuart forest, in the Ludlow district, 21,000 Tuart seedlings, raised in the nursery in bamboo tubes, were planted out, and 15,000 seedlings from natural regeneration on ash beds were transplanted to give improved stocking.

Successful fire control measures have been maintained over all treated and planted country, which now amounts to many thousands of acres, and no fire losses were sustained during the summer.

Top disposal operations to eliminate dangerous fire hazards following falling operations on Jarrah country being worked under the Group Selection system were carried out over 44,230 acres. This work provides for the burning of individual tops after the debris has been cleared away from around the base of valuable immature trees, reducing fire damage to a minimum and giving seedlings resulting from natural regeneration a chance to become established before the forest will again carry a fire.

*Sandalwood.*—The quantity of sandalwood exported was 6,820 tons, valued at £199,700. Considerable progress was made in the location, assessment, and demarcation of reserves in the Eastern Goldfields for the protection and reforestation of sandalwood. 238,000 acres were classified with the object of ascertaining the stocking of immature sandalwood and the percentage of land with host plants and soil conditions suitable for sowing. Experimental sowing of sandalwood nuts was carried out over 324 acres.

*Mallet.*—The value of tanning materials imported was £8,970, and £15,820 worth of mallet bark was exported. The area of country reserved for the protection and regeneration of Brown Mallet is 43,000 acres, and a closer assessment of country within these reserves considered suitable for the sowing of mallet is now in progress. 180 acres were spot sown, and excellent germination has resulted.

##### AFFORESTATION.

Seven hundred thousand young pines were planted out on 737 acres. The seed of 14 new species of pine not previously grown in the State has been obtained from various countries, and experimental plantings will be carried out in arboreta and on other specially selected sites.

Sixty-five thousand young trees were distributed to the public at cost price.

##### GENERAL.

Topographical surveys have been carried out over 273,950 acres of forest country, involving 2,834 miles of traverse. Eleven new lithographs have been published; 40,750 acres of forest have been classified with the object of determining the volume and distribution of marketable timber.

Eight houses have been erected in the forest for the accommodation of resident staff and two houses purchased. Twenty huts have been erected.

Eighty miles of roads and tracks were opened up. Forty-two miles of telephone, principally tree line, were constructed.

Research work has been continued, and a considerable advance made in our knowledge of air and kiln seasoning of local hardwood. Fluorising, the recently patented process for the preservative treatment of Karri, has proved satisfactory in practice in a large scale commercial plant. A new method for the treatment of Marri trees to give a greatly increased yield of kino has been evolved.

Silvicultural research has resulted in a considerable advance being made in our knowledge of the factors governing natural regeneration of local species. The tracing of difficulties associated with the establishment of new pine nurseries to a missing soil organism may be regarded as a discovery of far-reaching importance. It appears that, without the aid of a mycorrhizal fungus, young pine seedlings of many species cannot be raised satisfactorily, and soil infection of new nursery sites is now carried out systematically with excellent results.

## CHAPTER II.

### CONSTITUTION OF STATE FORESTS.

1. During the past year very little progress has been made in the dedication of prime Jarrah and Karri country as State Forest. It was anticipated that, in view of the auspicious start made with this work in 1926, much more would have been accomplished before this report was prepared. There are large areas of prime forest country awaiting dedication, in connection with which no difference of opinion exists, and it is hoped that it will prove possible to accelerate this most important work during the current year. The agreed quota of 3,000,000 acres to be provided by Western Australia towards the 24,000,000 acres of permanent forest, estimated to be necessary for the national welfare and safety of Australia, is small in comparison with the area of the State and the population which must ultimately be attracted to the Western side of the Continent.

It is interesting to note what other States have accomplished in this connection:—

	Quota allocated to the State.	Area of State Forest (30th June, 1927.)
	acres.	acres.
New South Wales ...	8,000,000	5,328,889
Queensland ...	6,000,000	1,799,175
Victoria ...	5,500,000	3,581,371
Western Australia ...	3,000,000	949,238
Tasmania ...	1,500,000	327,929
South Australia ...	500,000	202,227
Total ...	24,500,000	12,189,444

### 2. Alterations in area of State Forests and Timber Reserves:—

#### STATE FORESTS (FORESTS ACT, 1918).

	June, 1926.	June, 1927.	Increase or Decrease.
Jarrah ...	896,946	928,801	* 31,855
Karri ...	7,200	7,200	...
Tuart ...	6,091	5,932	† 159
Other species ...	6,316	7,305	* 989
Total ...	916,553	949,238	* 32,685

\* Increase. † Decrease.

The increase in Jarrah is accounted for by the dedication of State Forests 20 (Greenbushes) and 21 (Mullalyup), comprising 14,190 and 17,425 acres respectively, and by additions as follows:

21 acres to State Forest No. 4 (Collie).

175 acres to State Forest No. 6 (St. John's Brook).

44 acres to State Forest No. 11 (Noggerup).

The decrease in Tuart is due to adjustment of areas.

The increase in other species represents an addition to State Forest No. 16 (West Harvey).

#### TIMBER RESERVES (FORESTS ACT, 1918).

	June, 1926.	June, 1927.	Increase or Decrease.
	acres.	acres.	acres.
Jarrah ...	31,286	36,515	* 5,229
Karri ...	1,807	1,807	...
Other species (being mostly Eastern Gold-fields) ...	741,271	637,458	† 103,813

\* Increase. † Decrease.

The only considerable alteration in area is accounted for by the revocation of the Bullfinch Reserve (108,000 acres), which was created for the purpose of protecting the timber there for mining requirements within the boundaries of the reserve, but with the decline in mining and the extension of the wheat belt, it was agreed that practically the whole of this area should be subdivided for settlement.

## CHAPTER III.

### REVENUE.

(Gross Revenue—£222,507.)

The gross revenue for the year ending 30th June, 1927, shows a slight decrease compared with the amount collected during the previous twelve months. This decrease of £4,553 was rather in the nature of a fluctuation, due to late delivery of certain Sandalwood orders. The revenue obtained from major forest produce remained steady. Increased returns from hewn timber compensated for a slight fall in revenue from sawn timber.



### 1.—THE TIMBER TRADE.

The total production of sawn and hewn timber for the year ending 30th June, 1927, amounted to 21,377,317 cubic feet, the estimated value of which is £2,780,000. This production shows an increase of just over half a million cubic feet on last year's figures. The quantity of local timber used within the State represented 8,797,055 cubic feet, or approximately two-fifths of the total production. The increase in the export trade has continued and, during the year under review 12,580,262 cubic feet of timber were sold overseas, the declared value of which is £1,659,876. Although the quantity exported for the past year did not reach the record established in 1913, it is pleasing to note that the value of the timber exported is the highest on record.

The Eastern States of Australia, who were again our largest buyers of timber, purchased 4,539,489 cubic feet. The South African Union, with 3,594,850 cubic feet, and New Zealand and India, with over a million cubic feet each, were the other chief buyers. With the exception of 304,799 cubic feet, the whole of the timber exported from this State went to countries within the British Empire. Sixty-four per cent. of the State's output was disposed of within the Commonwealth.

Timber to the value of £162,193 was imported into the State. Compared with the previous year these figures show an increase of £17,204.

Sixty-eight sawmills have been operating on Crown lands during the year, and obtained 38,066,000 cubic feet of mill logs from this source. There was also a number of small mills operating on private property. Several mills closed down during the year.

There is a marked increase in the quantity of hewn timber obtained compared with the previous year. Of the total quantity hewn, 7,523,062 cubic feet, 77 per cent. came from private property.

Much of the hewing on private property has been carried out by Southern Europeans, who are not eligible for employment in this capacity on Crown lands. There has been no considerable increase in demand for sleepers to justify this increase, and consequently, serious overcutting has taken place, with the inevitable result of a fall in prices, and subsequent unemployment. While large supplies of timber remain on freehold land, it is difficult to see how the position can be satisfactorily controlled to provide regular and lucrative employment for the greatest possible number of men. The position has to some extent been aggravated by the necessity for disposing of timber in advance of settlement. A careful study of the export timber market during the past few years indicates the futility of forcing the sale of timber on a steady market already fully supplied, in an endeavour to make land available for settlement. Practically any Jarrah forest, with the possible exception of the poorest stunted types, will yield timber with an export value of over £30 per acre, if intensively worked, but, if hurriedly cut over in conjunction with settlement schemes, not more than £5 to £10 worth of this timber is recovered. In addition to this loss in timber destroyed, the effect on an established industry directly employing over 8,000 men, and supplying 20 per cent. of the railway revenue of the State is a matter deserving serious consideration.

There is no doubt that every acre of poor type Jarrah forest remaining on the fringes of the prime forest will be required to bridge over the lean period between depletion of supplies from our natural forests and the maturing of the first of the regenerated forests. It will prove possible to obtain big quantities of exceedingly durable sleepers from this comparatively stunted forest, and its value for this purpose and the poor quality of the land for other uses may be held to justify its retention under timber. We are, and have been for many years, working into our forest capital, and it is hoped that, before the next annual report is presented, it may be possible to complete the compilation of figures indicating the total stand of Jarrah timber remaining. Nature has made wonderful efforts to replace the cut over forests, but, unaided by protective and very necessary improvement operations, has been quite unable, in the past, to reproduce as rapidly as exploitation has taken place.

A compilation of the nature indicated above has recently been completed for Karri. The total stand of Karri timber remaining is estimated at 301,650,000 cubic feet in the round. A general Working Plan, having as its object the maintenance of a sustained yield for Karri, has been prepared for submission to Executive Council, and the following information is extracted from the Working Plan document:—

(a) Sawmilling rights have been granted which render it possible for 7,650,000 cubic feet of Karri timber in the log to be cut annually for some years to come, although the total volume of Karri log timber sawn last year amounted to only 3,996,000 cubic feet.

(b) If a period of 100 years is allowed in which to re-establish cut-over forests and allow them to reach maturity for sawmilling purposes, the permissible annual cut is 3,000,000 cubic feet.

(c) In order to maintain this output of Karri timber, it is necessary that 100,000 acres of prime forest be dedicated as State forest, and that regeneration operations proceed at the rate of 1,000 acres per annum.

(d) With the exception of one Karri mill already mooted, to provide for the early release of land required for settlement between the Deep and Frankland Rivers, the Working Plan will stipulate that no further mills shall be erected, nor the capacity of existing mills increased, during the next 10 years, which is the period of the Plan.

During the period of the Plan, it would appear that overcutting is inevitable. A more accurate determination of areas and volumes will be possible before the first revision of the plan, and adjustments in the permissible cut will be based on more complete data than is at present available.

During the year the Railway Department have found it possible to secure supplies of hewn Wandoo sleepers at reasonable prices. 919,766 cubic feet of Wandoo (460,000 sleepers) have been cut and supplied from private property, resulting in an extension of timber operations to the North and East of the Jarrah belt. With few exceptions, no Wandoo has been made available for hewing on Crown lands. The scope of land inspections prior to alienation, to prevent loss to the Crown of valuable timber on

land to be secured at low prices, has been considerably extended and several areas of valuable Wandoo forest have been located.

(a) *Concessions and Leases.*  
(Rent and royalty, £25,808.)

The Jarrahdale Timber Concession and 17 timber leases remained in force on the 30th June. With the exception of the concession and one lease, all the cutting rights are now held on a royalty basis.

(b) *Sawmilling Permits granted under Section 11 of the Land Act Amendment Act, 1904.*

(Royalties: Sawmilling, £42,133; Hewing, £1,467.)

Twenty-two permits granted under the Land Act remained in force at the end of the year. As these permits expire they are extended on a yearly basis, subject to such conditions as are considered necessary for the better management of the forests.

(c) *Permits under Forests Act, 1918.*

(Royalties: Sawmilling, £58,349; Hewing, £19,206.)

Forty-three sawmilling permits and 37 hewing permits, granted under the Forests Act, were being operated at the close of the year under review. The royalty payable on sawmilling timber remained about the same as for the previous year. There was an increase on last year's figures of £9,569 in royalties received from hewing permits granted under the Forests Act, 1918, due to the higher rates of royalties received during the year for hewn timber.

The granting of monthly local hewing permits on Working Circles, in conjunction with regeneration work, has been continued and extended. During the year 859 permits of this nature were granted, being an increase of 493 compared with the previous year.

(d) *Minor Forest Produce.*

Twenty-five annual firewood permits were in operation at the end of the year, and 457 monthly local firewood permits within Working Circles were granted for the year. The revenue received from this source was £632. Mining timber returned a royalty of £847, piles and poles £631, fence posts £162, and boronia blossom £81.

## 2.—TIMBER INSPECTION.

(Inspection Fees, £21,603.)

The volume of hewn timber inspected for the year was 7,479,825 cubic feet.

The volume of sawn sleepers inspected was 1,701,124 cubic feet, and other sawn timber inspected totalled 937,842 cubic feet.

One hundred and twenty-three thousand seven hundred and twenty-five lineal feet of piles, poles, and beams were inspected.

With the exception of conditions relating to size, all sleepers have been inspected according to the Forests Department standard specifications. As the inspection takes place before loading alongside Government lines, it is frequently carried out within a few days of cutting, and considerable experience and knowledge of timber are required to detect certain faults which may become very apparent later, as seasoning strains and stresses develop. The infrequency of complaints from buyers indicates the care exercised in this inspection. No complaints have been

received based on serious faults affecting the durability of the sleeper, such as dry rot, but the general standard of workmanship in cutting has not been entirely satisfactory. With large numbers of new men working on private property, timber inspectors have at times had very difficult problems to face in protecting buyers' interests. It is difficult to reject good timber because of variation in size, deep score marks, or other faults in cutting, but, if the good name of Western Australian Jarrah is to be preserved some improvement in this direction is necessary.

The inspection with regard to other classes of timber is not so satisfactory. There are no recognised specifications, and orders are accepted on specifications not applicable to Jarrah. It is evident that select timber for bridge construction is not necessarily select timber for joinery and *vice versa*, and yet under existing conditions, the same specifications may be made to serve, and the inspector is expected to be reasonable in his standards. The division of sawn Jarrah specifications into certain broad classes, based on the use to which the timber is to be put is long overdue, and it is hoped to make a further move to interest the trade in the necessity for definite action along these lines in the near future.

## 3.—THE SANDALWOOD TRADE.

(Revenue, £46,074.)

The license system for the control of Sandalwood getting from Crown land, which was brought into operation from 1st November, 1923, has continued with satisfactory results. The distribution of orders amongst Sandalwood getters and prospectors has been made on the recommendation of the Advisory Boards throughout the year.

Owing to the development of the Sandalwood trade in South Australia, a conference was held in January last between representatives of the South Australian and Western Australian Governments with a view to discussing the position regarding the joint control of Sandalwood pulling in the two States, so that the present market values might be maintained. As a result of this conference, it was agreed that for the twelve months ending 31st January, 1928, the quantities to be obtained for export overseas should be limited in South Australia to 2,600 tons and in Western Australia to 5,400 tons. The position is to be reviewed in December next to further consider mutual arrangements for the control of the industry after the 31st January, 1928.

The effect of the reduction in quantities of Sandalwood to be obtained under the current year's licenses has not yet been felt by the Sandalwood getters, owing to the fact that licensees were entitled to obtain the balance of the wood outstanding under last year's licenses, amounting to 750 tons, for which orders have been issued.

*Sandalwood Getters' Orders.*—The Board appointed to deal with applications for orders from Sandalwood getters held three sittings, and recommended the placing of orders with persons known to have been engaged in Sandalwood getting during past years. In a few instances orders were placed with old Sandalwood getters holding pastoral leases who, owing to the dry season experienced last year, were in need of assistance to enable them to carry on.

*Prospectors' Orders.*—A quantity of 2,400 tons was made available for prospectors, and the maximum order was increased from 10 to 12 tons. The Board dealing with the applications from prospectors met on three occasions and dealt with over 300 applications. It was not possible to grant orders to all the applicants, and the Board's task in allocating them

was far from enviable. It is pleasing, however, to record the appreciation of the Prospectors' Association conveyed to the Board members by the Association's representative.

The following is a statement of Sandalwood orders recommended for the period of the current licenses:—

No. of Persons.	Quantity of Orders.										Total.	
	Tons.										Per- sons.	Tons.
	5	6	10	12	15	20	25	30	35			
Getters ... ..	...	...	6	...	15	78	45	27	13	...	184	4,270
Prospectors ... ..	...	13	...	184	...	...	...	...	...	...	197	2,286
											381	6,556

A small reserve of 200 tons is maintained to cover confiscations of Sandalwood illegally pulled, and to provide for the issue of orders to holders of C.P. locations who may obtain permission to pull the Sandalwood on their properties during clearing operations.

With a few exceptions, the Sandalwood supplied during the year was of a fair average quality, but in some instances, the cleaning specifications as stated on

the orders had not been complied with, which necessitated the re-conditioning of the wood at Fremantle. The increase in the orders placed with prospectors has resulted in a marked improvement in the quality of the sandalwood coming to hand, due, no doubt, to the fact that the larger quantity warrants their going further out for their wood. Deductions have been made for Sandalwood below fair average quality, as per statement hereunder:—

Deductions per ton on the tonnage listed.

5s.	10s.	15s.	£1	£1 5s.	£1 10s.	£1 15s.	£2	£2 5s.	£3.	£4	Over £4.
tons	tons.	tons.	tons.	tons.	tons.	tons.	tons.	tons.	tons.	tons.	tons.
13	58	14	40	17	12	4	12	8	21	6	30

No deductions were made in respect of 4,969 tons. Average price received by getters per ton was £15 18s. 8½d. for logs.

*Private Property Sandalwood.*—There has been a noticeable reduction in the quantity of sandalwood obtained from private property, primarily due to the fact that the supplies of sandalwood from this source are rapidly being exhausted, and to the large stocks accumulated at Fremantle. Investigations have been carried out in respect of 120 private property contracts, necessitating inspections of 295 private property locations. The system of estimating quantities pulled and remaining on private property has been altered to provide more adequate records, and to make periodical tests possible. The total quantity of private property sandalwood railed during the period of report was 559 tons.

*Illegal Operations.*—It was found necessary during the year to confiscate 96 tons of Sandalwood pulled illegally. In some cases the wood was pulled from reserved areas, but with no intention to evade payment of royalty or wilfully defeat the objects of

the Regulations. In such cases compassionate payments were made, amounting to £323.

*Roots and Butts.*—The roots and butts received by the licensees and taken over by the Department amounted to 1,065 tons, and of this quantity 440 tons were sold to the four firms holding Sandalwood licenses for export.

To meet the requirements of the local Sandalwood oil distillation companies a quantity of 326 tons was made available, and a further quantity of 500 tons held in stock at the Department's depot at Fremantle. The quantity of Sandalwood oil exported during the year was 37,000 lbs.

*General.*—Sandalwood shipments for the year totalled 6,820 tons, and at the 30th June there was approximately 5,350 tons stacked at Fremantle.

The trade has been seriously affected by the conditions prevailing in China, and without the present system of Sandalwood control it is doubtful whether the regular supplies and prices would have been maintained during the past year.

Particulars of Sandalwood obtained from all sources for the period of report will be found in the appendix, page 33.

The thanks of the Department are due to the following Board members for their services in connection with the allotment of orders:—

*Board for Sandalwood Getters' orders—*

- Mr. G. E. Brockway (Chairman)—Conservator's nominee.  
 Mr. H. M. Ross—Sandalwood Getters' nominee.  
 Mr. H. J. Herbert—Licensees' nominee.

*Board for Prospectors' orders—*

- Mr. T. Y. A. Lang (Chairman)—Mines Department's nominee.  
 Mr. C. A. McParlin—Prospectors' nominee.  
 Mr. G. E. Brockway—Conservator's nominee.

#### 4.—FOREST OFFENCES.

During the year 87 forest offences were reported to Head Office. It was found necessary to take proceedings under the Forest Act and Regulations in 42 cases, which resulted in 37 convictions being recorded and fines amounting to £196 10s. being imposed.

The Department has experienced considerable trouble during the year in connection with the illegal cutting of timber on Crown lands. In the majority of cases these operations are conducted by foreigners employed by sleeper contractors who hold cutting rights over private property, but who fail to exercise proper supervision over the work of their employees.

The proceeds from the sale of timber illegally cut amounted to £675.

### CHAPTER IV.

#### EXPENDITURE.

(Total expenditure from all Funds, £103,319.)

#### 1.—GENERAL ADMINISTRATION AND COLLECTION OF REVENUE.

This is the only item which is charged against Consolidated Revenue Fund, the expenditure from which amounted to £23,191, which was the same as the amount expended during the previous year.

#### 2.—REFORESTATION FUND.

The following statements show the position of the Reforestation Fund (Section 41, Forests Act, 1918) at the close of the financial year:—

	£	£
Revenue for 1926-27 (excluding revenue from sandalwood) ... ..		166,227
<i>Less—</i>		
Consolidated Revenue (excluding sandalwood) ... ..	19,046	
Interest on loan ... ..	2,277	
Sinking Fund ... ..	210	
Special Acts ... ..	852	
Audit Fees ... ..	293	
	22,678	
Net Revenue ... ..		£143,549

Three-fifths of the above amount was placed to the credit of the Reforestation Fund, the position of which is shown hereunder:—

*Reforestation Fund.*

	£
Balance at 1st July, 1926 ... ..	101,177
3/5ths Net Revenue transferred ... ..	86,129
Sundry Recoups, 1926-27 ... ..	385
	187,691
Less expenditure, 1926-27 ... ..	72,645
Balance available for Reforestation Work, 1927-28 ... ..	115,046

#### 3.—SUMMARY OF DIVISIONAL REPORTS.

(*Note.*—Owing to the pine planting season extending into August each year, the preparation of this Annual Report which, under the terms of the Forests Act, 1918, is required to be presented during September, is found to be unduly delayed. In consequence, the pine planting operations referred to are those carried out during the season, May to August, 1926. This practice, which will be followed each year, will enable not only the area planted but the results secured, based on survival at the end of the first summer, to be set out more satisfactorily.)

(a) *Division No. 1 (Yarloop, Ludlow, Busselton, and Margaret River Districts).*

*District Notes.*

In the Yarloop district five mills operated on Crown lands, cutting over 8,300 acres approximately for 126,000 loads of log timber. 5,621 lineal feet of piles and poles were cut on Crown lands. Hewing operations were confined to private property, 6,785 loads of sleepers being produced. Top disposal operations were carried out by Departmental employees over 5,800 acres, and no serious fires were reported.

In the Margaret River and Busselton districts extensive hewing operations continued, chiefly on Group Settlement country. 22,130 loads of sleepers were cut, and as many as 320 hewers were employed in the district. Towards the end of the year the cutting rate was greatly reduced owing to shortage of orders.

*Working Circle Reports.*

(*Ludlow—Reforestation, Tuart; and Afforestation, Pinus pinaster.*)

*Reforestation.*—With the object of ascertaining the total stand of Tuart in the Working Circle for the purpose of revising the Working Plan originally prepared in 1922, an assessment was carried out over 5,580 acres. This showed an average volume of 4½ loads of mature timber per acre, and an average of five well-grown dominant poles from 10in. to 22in. diameter B.H. per acre. New compartment boundaries were surveyed, dividing the forest into 57 compartments of approximately 100 acres each.

Twenty-one thousand Tuart seedlings raised in bamboo tubes were planted out, and 15,000 one-year seedlings resulting from dense natural regeneration surviving on ash beds were transplanted to adjacent open spaces where natural regeneration had failed. Blood and bone fertiliser was used in connection with planting, a small quantity being placed in each planting hole.

The total length of firebreak strips cultivated was 45 miles. Three fires started in swamp country adjoining the forest, but were suppressed without damage. No fires occurred on the forest.

Agistment was allowed on certain compartments carrying no regeneration, and the revenue from grazing was £123.

Six and three-quarters miles of fencing was constructed along a main road owing to notice being served by the Capel Road Board to remove gates previously allowed across the road.

*Afforestation.*—An experimental nursery was established on Compartment 33, Stirling Block, and it may prove possible to reduce transport costs of planting stock for this block if successful.

Twenty-three acres were cleared for planting on the Stirling Block.

Twenty-six acres were planted with *P. pinaster* (6ft. x 6ft.) on the Coolilup Block, and experimental plots of *P. caribaea* and *P. taeda* established on several different soil types.

Six miles of firebreak strips were ploughed, and nine miles cultivated with a spring-tooth cultivator.

Thirty-two acres of broadcast *P. pinaster*, sown in 1923, was thinned out at a cost of 12s. 6d. per acre.

No fire losses were experienced.

(*Myalup—Afforestation, P. pinaster.*)

A supplementary nursery was established in the vicinity of the overseer's house, and 15 pounds of *P. pinaster* seed and small quantities of *P. caribaea* and *P. echinata* sown.

One hundred and twenty-eight acres were cleared; 73 by contract at £2 5s. per acre, and the balance by day labour.

Fifty chains of two-chain firebreak and 198 chains of secondary breaks were cleared.

Compartments 1 to 24, comprising 571½ acres of planting country, were enclosed by a temporary barbed wire fence to prevent damage to recently-planted compartments by large stock straying on the State Forest.

Spot cultivation has been found necessary in advance of planting, and 48,000 spots were cultivated at a cost of £2 17s. 3d. per 1,000.

One hundred and three acres were pit planted with *P. pinaster* (6ft. x 6ft.).

Two acres were cleared for permanent pasture at the overseer's house, and a windmill and tankstand erected.

Five portable huts constructed of Tuart and *P. insignis*, cut at Wonnerup, were erected.

(*Harvey Weir—Afforestation, P. insignis.*)

The original nursery on the site of an old market garden has been abandoned, chiefly on account of high cost of weeding, and a new nursery has been established in proximity to the overseer's house, and sown with *P. insignis* seed.

Seventy acres were cleared for planting at a cost of £2 14s. per acre. 60 chains of firebreak and 40 chains of track were cleared.

Thirty-nine acres were planted with *P. insignis* (8ft. x 8ft.). 10 acres were spot sown with *P. canariensis* (6ft. x 6ft.).

An overseer's house (type 6) and stables were erected, and a bridge across the Harvey River constructed to replace the one destroyed by the 1926 floods.

(b) *Division No. II.*

(Metropolitan and Mundaring Districts.)

*District Notes.*—The number of firewood permits being worked in the metropolitan district was 17. Hewing operations were confined to private property. The placing of large orders for Wandoo sleepers by the Western Australian Government Railways caused increased inspection work, and the need for constant patrol in localities where large numbers of Southern European cutters have been employed. Six cases of trespass and illegal cutting on Crown lands have been reported, and a number of prosecutions are pending.

*Working Circle Reports.*

(*Mundaring—Reforestation, Jarrah; and Afforestation, various conifers.*)

*Reforestation—Jarrah.*

Tree-marking was carried out for three mills working under Forests Act, 1918, permits. 5,254 acres yielding 14,536 loads, or 2¾ loads per acre, were worked over by the mills. An average of eight sleeper cutters were employed under local hewing permits in advance of regeneration cleaning, and 1,328 acres were worked over for 495 loads of sleepers, or .3 loads per acre.

The average number of firewood cutters working on the Working Circle was 60, and the total production was 27,889 tons. No. I. and No. II. Pumps, Goldfields Water Supply, were supplied with 6,569 tons.

Seventy-seven acres on the Sawyers' Block and 36 on the Reservoir Block were treated for regeneration under the Clear Felling system, at a cost of £2 14s. per acre, against which must be set off the value of 280 cords of firewood now stacked for drying. This work is being carried out on country ringbarked 24 years ago, and now heavily stocked with a crop of saplings which have suffered severely from fire damage. In many places where a percentage of the regrowth has escaped serious injury, it resolves itself into thinning operations.

Eight hundred and ninety acres have been treated under the Group Selection System, at a cost of 11s. per acre, and regeneration cleaning was completed on a further 295 acres started in the previous year.

One thousand three hundred and fifty chains of five-chain fire belts round 500-acre compartments were cleaned up by the cutting of blackboys and other debris likely to interfere with future controlled burning.

*Afforestation.*—The total area planted on four blocks was 349¼ acres.

A camp of two men has been constantly employed on soil classification and subdivision of proposed pine-planting country.

At Greystones the subdivision was altered and extended, making provision for 39 compartments totalling 1,400 acres.

On Helena Block a detailed soil survey was carried out. The subdivision covers 24 compartments, totalling 916 acres, of which 288 acres have been planted.

Along Darkan and Beraking Rivers reconnaissance surveys of possible pine-planting country were made. Beraking Working Circle was subdivided into compartments and corner pegs placed. In the course of these surveys all old survey lines were opened up, giving satisfactory datum points for future subdivision.

Further east, country was inspected, and 1,000 acres classified and recommended for pine-planting at the rate of 50 acres per year.

On the Helena Block 134 acres were cleared for planting in 1927. 261 acres were pit planted with *P. insignis* (8ft. x 8ft.), 12½ acres with *P. pinaster* (6ft. x 6ft.), 6½ acres with *P. muricata* (7ft. x 7ft.), 2 acres with *P. caribaea* (8ft. x 8ft.), and 2 acres spot sown with *P. canariensis* (6ft. x 6ft.). On the Greystones Block 59 acres were cleared for 1927 planting, 14 acres were pit planted with *P. insignis* (8ft. x 8ft.), 8½ acres with *P. canariensis* (6ft. x 6ft.), 5 acres with *P. pinaster* (6ft. x 6ft.), 1 acre with *P. caribaea* (7ft. x 7ft.), and half an acre with *P. Torreyana* (8ft. x 8ft.). Refilling was carried out over 84 acres of the previous year's planting.

On the Darkan Block 84 acres were cleared for 1927 planting. Planting was limited to a few acres for experimental purposes.

On the Illawarra Block 20 acres were planted with *P. insignis* (8ft. x 8ft.), and 8 acres with *P. muricata* (7ft. x 7ft.).

On the Beraking Block 47 acres were cleared for planting in 1927.

A road was cleared for a total length of 10 miles, connecting the existing road system with the site of the overseer's house in the Beraking Block. 7¼ miles was formed, gravelled where necessary, and one bridge and a number of culverts constructed. Clearing was according to firebreak specification, as this road for its whole length traverses good planting country, which is being subdivided for pine-planting.

During the year considerable trouble was experienced with brumbies damaging plantations. Unbranded stock over 18 months old found trespassing was destroyed.

*Fire Control.*—The area under control was 134,500 acres. During November the bush would carry a running fire, but the first fire did not occur until 19th December, 1926.

Mt. Dale Lookout Station was manned continuously from 8th December to 12th March, and Mt. Gungin Lookout Station from 21st December to 12th March, and again from 10th to 27th April, when the rains set in. The summer was dry, only 742 points falling during November to April. No rain fell in December or February.

Approximately 20,000 acres carrying no young re-growth were burnt by controlled fires, and top disposal operations carried out over 1,094 acres where hewing or milling operations were in progress.

The number of fires was remarkably small, totalling only six, all of which were suppressed without damage to treated or planted country.

Area under control—134,500 acres.

Area burnt—590 acres.

Percentage burnt—44.

Total cost—£628.

Cost per acre—1.1d.

#### *General.*

Motor and dray traffic on all roads was very heavy for the year, and this, in conjunction with heavy rains in winter 1926, necessitated extensive repairs to roads and tracks. The volume of work necessitated purchase of a road-grader, which has resulted in economies in formation of new tracks and maintenance of existing tracks.

Seventeen miles were added to the telephone system connecting up with Darkan, Beraking, etc., forest stations.

At headquarters repairs and improvements were effected on three houses and in several paddocks.

The overseer's house at Helena Forest Station was completed, stables erected, paddocks cleared, and fruit trees planted. Also a windmill, tank and tank-stand were erected.

At Helena Camp Site three huts, stables, equipment and tool shed were erected, and a good well sunk.

The overseer's house at Barton's Forest Station received repairs and additions, and a horse paddock was cleared, fenced and ploughed.

At Beraking Forest Station a house site and paddocks were cleared, a well sunk and timbered, and a hut, rough stable and horseyards erected.

Four huts were purchased on an old mill site with the object of providing hut accommodation for all planters in lieu of tents.

#### *(Gnangara—Afforestation, Pinus pinaster.)*

Three hundred and ninety-six acres were subdivided into 11 compartments, with a planting area of 324 acres. The original nursery on a small area of swamp repurchased will provide 35,000 pines for planting in 1927. It was decided, owing to the high cost of weeding of this nursery, to clear a more suitable site in proximity to headquarters, and 60lbs. of *Pinus pinaster* seed were sown in the new nursery, after it had been treated with soil for infection purposes.

Forty-two acres were clear-felled at a cost of 15s. 8d. per acre, and burnt for ploughing.

Compartments 1 to 14 were fenced.

In order to test the value and economy of various methods of soil preparation, different methods were tried on compartments for next year's planting. 45 acres were ploughed and cross-ploughed, 15 acres were ploughed one way. Various classes of spot hoeing were also tried. 50 acres were planted, 42 acres with *Pinus pinaster* (6ft. x 6ft.), 6 acres with *Pinus caribaea* (8ft. x 8ft.), and 2 acres with *Taxodium distichum* (4ft. x 4ft.).

Sucker bashing—150 acres planted in the previous year cost 7¾d. per acre.

The overseer's house was connected to the metropolitan telephone system. Paddocks in the vicinity of the overseer's house were improved, and three additional huts were erected.

*(South Perth—Afforestation, Pinus pinaster.)*

Four hundred and seven acres, including firebreaks, were subdivided into compartments. The nursery was extended by one acre, and 98,000 *P. pinaster* seedlings were transplanted. 27½ acres were cleared and burnt, and 10 acres partially cleared. 24½ acres were ploughed, and 54 acres cultivated by spot hoeing at a cost of £1 5s. 3d. per acre.

The area planted in 1926 season was 51 acres *Pinus pinaster* (6ft. x 6ft.). 76 acres planted in the previous year were sucker-bashed, at a cost of 10½d. per acre. Three acres of paddocks were cleared, cultivated and sown for permanent pasture.

*(Applecross—Afforestation, Pinus pinaster.)*

The Working Plan was approved to date from the 1st November, 1926. 945 acres were subdivided into 30 compartments. The large standing timber on 49½ acres previously partially cleared and ploughed was felled and burnt. 25 acres were cleared and burnt. 98½ acres were clear-felled ready for burning, and wood cutters are now operating, working up the felled timber into firewood. While this wood-cutting is proceeding 40 acres have been partially cleared to allow ploughing before the big timber is felled. 27 compartments, amounting to 960 acres, were enclosed with stock-proof fence. 25 acres were planted with *Pinus pinaster* (6ft. x 6ft.), and a further 76 acres cultivated for planting in the 1927 season.

The repurchased house was improved for the use of an overseer, and a windmill installed. Four portable huts were erected for the accommodation of the planting gang.

*(c) Division No. 3.*

*(Dwellingup, Wuraming, Narrogin Districts.)*

*District Notes.*

Practically the whole of the prime Jarrah forest country in this district has now been declared State Forest. Six mills have operated during the year under minimum girth restrictions, and two under tree-marking conditions. Top disposal operations, following the mill fallers, were carried out over 2,959 acres. With the exception of a limited number of hewers employed under local hewing permits on Working Circles where regeneration work is in progress, hewing operations have been limited to private property on the eastern fringe of the prime Jarrah forest where sleeper-cutting has proceeded on a large scale. Owing to large sleeper orders for Wandoo placed by the local railways, cutting has extended into the Narrogin district, and considerable areas which a few years ago were considered to be carrying timber of no commercial value, have produced large quantities of first-class sleepers. Arrangements have now been made whereby all Wandoo country in the district is submitted to the Forests Department for inspection before being thrown open for selection.

The extent to which Crown land has been denuded of mature Mallet is evidenced by the very few applications received for bark-stripping permits. The regulations gazetted in 1923 for the protection of immature Mallet have succeeded in saving a number of small areas of excellent regrowth, and further consideration is being given to the better protection of these areas from fire, and their extension by sowing on lines which have proved satisfactory at Cuballing.

A type 6 cottage was erected at Dwellingup headquarters for the accommodation of the Forester, and a windmill and tank stand were installed to supply three departmental houses at these headquarters with a more adequate water supply.

Sixty miles of tracks were cleared in the Dwellingup district, at a cost of £4 per mile, to render various portions of the district accessible and connect up the various Working Circles.

During the year the Dwellingup district was divided, creating a new district with headquarters at Wuraming. Two cottages and several smaller buildings, including an office, were taken over from the State Sawmills and provision made for water supply.

*Working Circle Reports.**(Jarrahdale—Reforestation, Jarrah.)*

The Jarrahdale Mill (Millars Timber and Trading Co.) continues to obtain portion of its log supplies from the Jarrahdale Working Circle, 255 acres being cut over under tree-marking conditions. Regeneration cleaning under the Group Selection System was completed on the first compartment, 163 acres being treated at a cost of 5s. 6d. per acre.

A cottage, type 6, was erected for the Assistant Forester in charge, and a start made with the clearing of a small area for permanent pasture.

*(Dwellingup—Reforestation, Jarrah.)*

This Working Circle is carrying an excellent crop of Jarrah regrowth in the seedling stage on a number of compartments, and stock map is in course of preparation.

Five sleeper hewers have operated under local hewing permits, and have cut over 343 acres under tree-marking conditions, an average of one load of squared timber per acre being obtained.

Five hundred and forty-five acres, treated under the Group Selection System, are now ready for the final burn next summer. 80 acres spot sown with Jarrah last year has given satisfactory results; two-thirds of the seedlings surviving the summer.

Controlled burning was carried out over 1,300 acres. One uncontrolled fire occurred on treated country, burning 20 acres.

*(North Marrinup—Reforestation, Jarrah.)*

The Marrinup Mill, which cuts 1,650 loads in the round per month, obtains its log supplies from this Working Circle. The area of the Working Circle is only 10,000 acres, and, in consequence, no attempt will be made to silviculturally treat the full area cut out each year for mill logs. During the past year mill logs were taken from 833 acres, which showed an average of 21 loads per acre. Four sleeper cutters were employed for nine months under local hewing permits, cutting sleepers in advance of regeneration cleaning. 211 acres were worked over, yielding one load of sleepers per acre.

A survey of the more recent timber tramlines, formations, and tracks is being carried out, and the boundaries of three 500-acre compartments fixed.

The area treated for regeneration was only 42 acres, as the overseer was not appointed until November, and was first employed on improvement work at headquarters, where paddocks were fenced and provision made for three acres of permanent pasture.



Spot-sowing carried out last year has given satisfactory results. The experiments made with various classes of fertilisers have not given any results, as far as survival at the end of the first summer is concerned, but height growth appears somewhat better at the fertilised spots.

Top disposal work was carried out over 890 acres, from which mill logs had been taken.

*(Holyoake—Reforestation, Jarrah).*

Five sleeper cutters have operated under local hewing permits, working over 393 acres, yielding an average of one load of sleepers per acre. Pending the cleaning up of sufficient area in advance by the hewers, the overseer has been employed on direct conversion for a period.

One hundred and eighty-one acres were treated under the Group Selection System, and 3,000 acres of untreated bush were burnt by controlled fires.

*(Inglehope—Reforestation, Jarrah).*

Six hewers have operated under local hewing permits, working over 286 acres under tree-marking conditions, the average yield being  $1\frac{1}{2}$  loads per acre. The area of country worked over in this way is now sufficient to justify the appointment of a resident overseer, and a house is in course of erection.

*(Plavin's—Reforestation, Jarrah.)*

Prior to the closing of the Australian Lumber Company's mill at Plavin's, 920 acres were cut over under tree-marking conditions. Five hewers have been employed under local hewing permits, and 394 acres were tree-marked and cut over, yielding three-quarters of a load of sleepers per acre.

After 52 acres were treated for regeneration under the Group Selection System, and firebreak belts amounting to 100 acres were partially cleared of undergrowth to enable controlled burning to be carried out, regeneration cleaning was suspended until sufficient country was hewn over to allow of the permanent employment of a resident overseer. A house is now in course of construction, and the overseer will be appointed in the near future.

*(Wuraming—Reforestation, Jarrah).*

The Working Plan was approved by Executive Council in July, 1926. Four hewers working under local hewing permits have cut over 190 acres under tree-marking conditions, yielding one load of sleepers per acre. Controlled burning was carried out over 1,200 acres. The appointment of a resident overseer has been held over until a sufficient area was cleaned up by hewers.

*(Pindalup—Reforestation, Jarrah).*

The Working Plan was approved in May, 1927. Port & Company's sawmill at Pindalup has continued to cut over accessible compartments under tree-marking conditions, and has worked over 288 acres.

Three miles of track have been opened up to serve as compartment boundaries and facilitate controlled burning.

Top disposal operations were carried out following the fallers, and 1,150 acres were burnt early in the year by controlled fires.

The southern portion of this Working Circle is carrying an excellent stand of Jarrah regrowth in the pole stage, and as sufficient country has now been worked over by the mill, it is proposed to appoint a resident overseer, and associate regeneration cleaning with a certain amount of improvement and thinning work.

*(Lol Gray—Reforestation, Mallet).*

It was decided to substitute complete clearing for the method first tried of partial clearing and ring-barking. 98 acres were cleared, at a cost of £1 2s. 6d. per acre. 180 acres were sown with Mallet seed, and excellent germination resulted.

Experiments were also carried out in the sowing of *Acacia pycnantha* on various soil types.

With the object of protecting some fine stands of young Mallet at present on the Working Circle, 2,000 chains of firebreak lines were cleared. The total length of firebreak strips ploughed was 1,770 chains.

*(d) Division No. 4.*

*(Collie, Noggerup, Muja, and Worsley Districts).*

*District Notes.*

Fourteen Jarrah mills were operating on Crown land, eight of which are on various Working Circles under tree-marking conditions. The total quantity of log timber cut during the year was 85,000 loads. Top disposal operations were carried out on prime Jarrah forests, from which mill logs were obtained.

There was a limited amount of hewing carried on on private property, and under tree-marking conditions on various Working Circles. The increased market for Wandoo timber has resulted in increased hewing activities in the Eastern districts, and heavy travelling has been necessary to cope with this work of land inspection.

*Working Circle Reports.*

*(Collie—Reforestation, Jarrah; Afforestation, various conifers).*

Reforestation, Jarrah.

Three mills obtained their log supplies from the Working Circle under tree-marking conditions, and 1,275 acres were cut over for an average of  $5\frac{1}{2}$  loads per acre. 48 local hewing permits were issued, and 345 acres were hewn, giving a yield of one load of sleepers per acre. In addition a considerable quantity of hewn sleepers was obtained from clear-felled strips, 5 chains wide, cut for fire control purposes between compartments being worked under the Clear Felling System. Timber getters for the coal mines were confined to small coupes and worked over 1,710 acres, yielding  $2\frac{1}{2}$  loads per acre.

Regeneration cleaning under the Clear Felling System was carried out on the Proprietary, Westralia, Cardiff, and Shotts Blocks. 934 acres were treated, and 1,865 chains of firebreak established.

Owing to the large amount of ringbarked timber remaining on treated compartments, it has been found necessary to clear-fell strips five chains wide along compartment boundaries to render possible the control of incidental fires and future controlled burning operations.

On the Arklow and Mungalup Blocks regeneration cleaning has been carried out, according to the Group Selection System, over 166 acres.



#### Afforestation.

Twenty-two acres were cleared for the planting of *Pinus pinaster*. 40 acres were planted with *Pinus pinaster* (7ft. x 7ft.) on the Proprietary Block, 5½ acres planted with *Pinus pinaster* and 15½ acres with *Pinus insignis* (8ft. x 8ft.) on the Mungalup Block.

For the protection of existing plantations 450 chains of firebreak were ploughed.

#### Fire Control.

The summer was mild, following a wet winter. The fire tower was manned from the 15th November until the end of April. The hazards were considerably reduced towards the end of the summer by a fall of 4in. of rain in March. Controlled burning was carried out over approximately 10,000 acres of untreated country, and top disposal operations carried out over 400 acres. The number of fires reported within the boundaries of the fire-protected area was 15, the whole of which were suppressed without damaging any treated or planted country.

Area protected—59,000 acres.

Area burnt—16 acres.

Percentage burnt—.03.

#### General.

Approximately 19 miles of telephone line were erected, connecting the overseer's houses at Shotts, Arklow, and Cardiff with Collie headquarters. Three forest grazing leases were issued over portion of the Working Circle, and a commonage of 500 acres for use by town residents was fenced by arrangement with the Collie Municipal Council. The enforcement of the Cattle Trespass Act will be undertaken by the Council. An overseer's house was erected at Shotts, and house paddocks cleared at both Shotts and Mungalup.

#### (Mumballup—Reforestation, Jarrah.)

The Mumballup Mill obtained its log supplies from the Working Circle under tree-marking conditions. The area cut over was 586 acres, yielding an average of 7½ loads per acre. Two hewers operating under local hewing permits have been working up short butts and dry siders in advance of regeneration cleaning.

Regenerating cleaning under the Group Selection System has been carried out over 345 acres, at a cost of 6s. 4d. per acre. The cost of cutting Blackboys on firebreak belts has amounted to 1s. 6d. per acre for 215 acres.

Six hundred and nine acres were burnt by controlled fires in advance of falling operations.

The horse paddock was cleared, fenced, ploughed, and sown with clover and oats, in proximity to the overseer's house.

#### (Noggerup—Reforestation, Jarrah.)

Fourteen sleeper hewers have been employed under local hewing permits under tree-marking conditions. 1,620 acres were cut over; yielding only .4 loads per acre. The utilisation has not been particularly satisfactory, and a higher return of hewn sleepers per acre should be obtained in the future.

Regeneration cleaning under the Group Selection System was carried out over 241 acres, at a cost of 6s. 3d. per acre. Blackboys were cut on 144 acres of

firebreak belts. 2,900 acres were burnt by controlled fires, and top disposal operations were carried out over 632 acres. Several small fires occurred during the year, but no damage was done to treated country. The overseer's house was fenced and horse paddock cleared.

#### (Potter's Gorge—Reforestation, Jarrah.)

Two mills working under tree-marking conditions cut over 1,068 acres with an average of 16 loads per acre. 283 acres were treated for regeneration, and Blackboys cut on 240 acres of firebreak belts. Controlled burning was carried out over 600 acres and top disposal operations over 530 acres.

#### (Worsley—Reforestation, Jarrah.)

A small mill operated during the year under tree-marking conditions, cutting over 570 acres for 3¾ loads per acre. Top disposal operations were carried out over 425 acres, at a cost of 8d. per acre.

It is proposed to amalgamate this Working Circle with Potter's Gorge at an early date and arrange for the appointment of a resident overseer.

#### (Bowelling—Experimental area for Pine planting.)

Sixty-seven acres were cleared at a cost of £2 per acre. 107 chains of fencing were erected. 22¼ acres were planted with the following species:—*Pinus insignis*, *P. pinaster*, *P. muricata*, and *P. Coulteri*.

#### (e) Division No. 5.

#### (Donnybrook, Jarrahwood, Nannup Districts.)

#### District Notes.

In the Donnybrook district eight mills operated during the year on Crown land, but were not all working constantly. Six small mills operated on private property. There was a limited amount of hewing on private property, no hewing permits being issued for Crown land. Top disposal operations were carried out over 2,495 acres.

The Nannup district was divided, and a new district created with Jarrahwood as headquarters.

A house and stables were erected at Jarrahwood for the accommodation of staff.

Three mills operated continuously on Crown land in the Jarrahwood district during the year, two on the Working Circles under tree-marking conditions, and one under minimum girth restrictions.

Top disposal operations were carried out over 4,241 acres, apart from a certain amount of similar work done in connection with regeneration operations on Working Circles.

In the Nannup district the Ellis Creek Mill closed down, and milling operations have been restricted to the one large mill at Nannup. Hewing has proceeded on country which it was intended should be subdivided for Group Settlement. Top disposal operations were carried out over 400 acres.

#### Working Circle Reports.

#### (Lowden—Reforestation, Jarrah.)

After cutting over 120 acres under tree-marking conditions, Bunning Bros.' mill completed operations and was closed down.

An improved property with house and paddocks, situated within the boundaries of the Working Circle, was purchased for the accommodation of the resident overseer towards the end of the year.

Twenty-seven acres were treated for regeneration under the Group Selection system. The Working Plan is now in course of preparation, and it is intended that regeneration operations shall be carried out at the rate of 500 acres per annum.

*(Upper Capel—Reforestation, Jarrah.)*

This Working Circle, which was originally called Claymore, includes the country being worked over by the Argyle Mill and the Claymore Mill, which is also obtaining portion of its log supplies from the Harrington Working Circle. 1,982 acres were worked over under tree-marking conditions, and 1,365 acres burnt by controlled fires in advance of trade cutting.

*(Harrington—Reforestation, Jarrah.)*

Four thousand one hundred and sixty-five acres were cut over under tree-marking conditions for log supplies for the Claymore Mill. 2,596 acres were cut over by sleeper cutters working under local hewing permits. Regeneration cleaning, Group Selection System, was carried out over 250 acres, and Blackboys cut on 527 acres of firebreak belts. A final burn was carried out over 50 acres and final ringbarking over 629 acres. Controlled burning extended over 3,660 acres.

*(Sussex—Reforestation, Jarrah.)*

The boundaries of this Working Circle were extended to include portion of the Jarrahwood Working Circle, and a new Working Plan was approved. Log supplies were obtained for the Sussex Mill under tree-marking conditions, 1,386 acres being cut over. 827 acres were worked over by sleeper hewers under local hewing permits, and a camp of apprentices being trained in sleeper cutting cut over 100 acres.

Regeneration cleaning under the Group Selection System was carried out over 615 acres, at a cost of 9s. 6d. per acre, and Blackboys were cut down on 1,149 acres of firebreak belts. A final burn was carried out over 103 acres, and regeneration operations were completed on 955 acres by final ringbarking of seed trees. Controlled burning was carried out over 1,200 acres, and top disposal over 391 acres.

*(Nannup—Experimental Pine Planting Area.)*

A total area of 122 acres was felled. 35¾ acres were fenced ready for planting during 1927.

*(f) Division No. 6.*

*(Greenbushes, Manjimup Districts.)*

*District Notes.*

In the Greenbushes district extensive hewing operations were carried out on private property, 19,153 loads of sleepers being obtained from this source. The loadage of sleepers obtained from Crown land was 2,963, cut on Group Settlement country. Only two mills were operating during the year.

In the Manjimup district five mills were working on Jarrah, cutting 51,623 loads of logs from Crown land, and 14,952 loads of logs from private property. Two mills were operating in the Karri forest, and cut 59,853 loads of logs. There was extensive hewing carried out in the district, chiefly on private property, although a certain amount of timber was obtained from Group country.

*Working Circle Reports.*

*(Yornup—Reforestation, Jarrah.)*

Five thousand two hundred acres within the Working Circle were classified. The mill operating on the Working Circle was closed during the latter part of the year for the purpose of reconstruction. While operating, 1,360 acres were cut over by the mill. 820 acres were cut out by hewers working under local hewing permits. Three quarters of a load of sleepers per acre was obtained by the hewers.

The only silvicultural operations carried out during the year were improvement thinnings on 45 acres, at a cost of 6s. 3d. per acre.

Owing to the small size and isolated position of the Working Circle, special precautions with regard to protection of boundaries from fire have been necessary, and 4½ miles of firebreak belt on external boundaries have been treated to reduce fire hazards. Controlled burning was carried out over 1,400 acres and top disposal over 700 acres. Four acres were cleared, and permanent pasture established in the vicinity of the overseer's house. A well was also dug and timbered.

*(Big Brook—Reforestation, Karri; Afforestation, various conifers.)*

A topographical survey was made of the Working Circle and the subdivision into compartments revised. Reference pegs were established on old landings. A revised Working Plan is in course of preparation.

*Reforestation.*

Pemberton Mill obtained its supplies of Karri timber from the area. Approximately 59,850 loads of Karri, giving 16,970 loads of sawn timber were obtained from 1,300 acres. Regeneration operations were carried out under the clear-felling system over 1,483 acres, at a cost of 7s. 7d. per acre. This treatment consisted principally of the ringbarking of Karri, the falling of Sheoak, and the slashing of undergrowth ready for a fire during next summer. On one compartment, on which it is not proposed to allow the cutting of the virgin Karri bush, approximately 30 acres were slashed and burnt in preparation for under-planting with Blackwood (*Acacia melanoxylon*).

Thirty-five miles of firebreak strips were cleared along whim tracks and formations opened up in the extraction of the logs for sawmilling, and, where necessary, were cultivated. On the outer boundary of the Working Circle 456 chains of firebreak belt, five chains in width, have been clear-felled of all species with the exception of Karri, at a cost of £1 12s. 6d. per acre.

*Afforestation.*

Owing to a heavy crop of weeds it was found necessary to establish a new nursery on recently-cleared land in the vicinity of the overseer's house. An area of 54 acres was cleared for planting, and a further 30 acres in the immediate vicinity of the overseer's house were clear-felled for the purpose of establishing an arboretum. It is proposed to start planting operations next year.

*General.*

A track four miles in length was cleared from the overseer's house to the Channybearup Road to provide a shorter route to Manjimup. Culverts and bridges on the tracks made by the formation for tram-lines which have now been taken up, were cleared around to reduce danger from fire. The house and horse paddocks were cleared, fenced, and ploughed. Fruit and ornamental trees have been planted and permanent pasture established.

*(Mullalyup—Reforestation, Jarrah.)*

Lewis and Stirk's mill established during the year operated over 97 acres, and hewers working under local hewing permits worked over 633 acres under tree-marking. The hewers recovered  $1\frac{1}{2}$  loads of sleepers per acre. Top disposal operations were carried out over 582 acres, and  $9\frac{1}{2}$  miles of track were cleared to facilitate controlled burning.

The site for the overseer's house and stables was cleared, and it is intended to erect the buildings and appoint a resident overseer at an early date.

*(g) Sandalwood Reforestation.*

Work carried out during the year may be divided into two sections:—

(a) The location, assessment and demarcation of reserves carrying growing sandalwood and considered suitable for large scale reforestation work in the future.

(b) The continuance of a limited planting programme having as its primary object the development of a satisfactory method for artificial regeneration of Sandalwood by sowing in areas of low rainfall in the Kalgoorlie district.

*General Reconnaissance (£676).*

During the year one Assistant Forester and a casual were employed on this work. 238,000 acres of land were selected and classified. Of this area 40,000 acres were considered unsuitable and rejected. Before selection, strip surveys were carried out to determine the number of growing Sandalwood already on the area, the stocking of vigorously growing host plants and the area of soil likely to prove suitable for sowing. All areas finally chosen are carrying a sufficient stocking of young sandalwood to justify reservation without further regeneration, and the stocking of host plants is sufficient for the purposes of artificial regeneration at some future date. A brief summary of the results of this classification on two areas is set out hereunder:—

Name—Bullock Holes: Total area, 35,410 acres.  
Total number of young Sandalwood trees—193,775.

Number of young Sandalwood trees per acre—5.46.

Area of first-class planting country—9,953 acres.

Area of second-class planting country—19,307 acres.

Name—Wallaby Rocks: Total area, 11,090 acres.  
Total number of young Sandalwood trees—53,984.

Number of young Sandalwood trees per acre—4.87.

Area of first-class planting country—4,417 acres.

Area of second-class planting country—2,626 acres.

*Survey and Demarcation.*

Six areas totalling 190,500 acres have been referred to the Lands Department for survey of external boundaries and reservation. This work has been completed on three reserves, totalling 32,450 acres.

One of the areas (Lakeside), in close proximity to Kalgoorlie, has been selected for experimental sowings, and various improvements are being effected.

A strip six feet in width has been cleared around the boundaries of the two remaining areas (Calooli and Yellari). This work costs approximately eight-pence per chain, but is of a permanent nature. It will eliminate the risk of unintentional trespass on reserved areas by Sandalwood getters and greatly facilitate patrol and inspection.

*Fencing.*

It has been decided to concentrate the work of artificial regeneration on Lakeside reserve for the next few years, where it is proposed to sow 500 acres per-annum until such times as the results secured justify an increase in the annual planting rate.

The total area of the reserve is 9,300 acres, of which 444 acres are being rabbit-netted and 7,624 acres surrounded by a cattle-proof fence. A contract has been let, and the work has been commenced.

*Sowing.*

The area sown last year was limited by the difficulty in securing seed supplies. Seed was very scarce throughout the whole of the Eastern Goldfields, apparently owing to the spell of dry seasons.

Area sown—324 acres.

Seed used—525 lbs.

Quantity of seed per acre—1 65 lbs.

Number of seed per acre—370.

Cost per acre—11s. 01½d.

The above sowing was distributed as follows:—

On unfenced country—31 acres.

Within stock-proof fence—208 acres.

Within rabbit-netted area—85 acres.

And various types of country chosen with the object of further determining factors controlling germination and survival.

The results of earlier sowings on Karamindie Reserve have been inconclusive, owing to absence of rain during 1926. Heavy rain which occurred in March, 1927, had resulted in the germination, by the end of June, of only about eight per cent. of seed sown early in 1926, but the greater proportion of the remaining seed appeared to be sound, and further germination is expected after the next rains.

The abnormally dry conditions have also adversely affected the growth of young trees sown in 1925, and considerable damage was caused by rabbits in early summer. After the rains in March, 1927, rapid growth commenced in Sandalwood and host plants, and a number of seed which had been two years in the ground germinated.

Sowings carried out at Bending, in the Eastern Wheat Belt, have also suffered very seriously from rabbits, and it would appear hopeless to attempt further sowings in areas where rabbits are numerous without netting and extermination, which is difficult and expensive in dealing with uncleared country. Small control areas are being sown to test these conclusions.

#### 4.—TRAINING OF STAFF.

*Apprentices.*—The Ludlow School was in session from September to December, 1926, during which period 13 apprentices were in residence.

Mr. A. Rule, Forestry Inspector, was in charge, and instruction in timber inspection work was given by Chief Timber Inspector McCoy, who visited the school periodically.

Apprentices have been employed in effective work of all descriptions in various districts for the greater part of the year.

A camp for the training of senior apprentices in sleeper cutting established at Mullalyup finished work during August, 1926. In January, 1927, a further batch of apprentices were considered old enough for this training, and another camp was started at Jarrahwood.

*Students.*—The establishment of a School of Forestry at Canberra by the Commonwealth Government, which will be equipped to give a full professional training, will meet the greatest need in Australian forestry at the present time. Western Australia is fortunate in the professional staff which has been secured during recent years, but the hope of the future lies in the sound training of junior members of the service, in both the theory and practice of forestry and allied sciences. The facilities now available will enable Australians to receive this training in an Australian environment. There are now four nominees of the Department at the Federal Forestry School, Canberra, two of whom will complete their diploma course at the end of 1927. Very favourable reports continue to be received concerning the work of these students.

#### 5.—RESEARCH AND INVESTIGATION.

Research has been continued under the direction of the Research and Investigations Committee, consisting of Mr. S. L. Kessell (Chairman), Professor H. E. Whitfield, and Professor N. T. M. Wilmore.

##### *Seasoning Investigations.*

Officer-in-Charge—S. A. Clarke, B.E.

##### *Air Seasoning.*

Considerable progress has been made towards confirming and amplifying the results of last year's air seasoning investigations. It was found, after the first year, that no further useful purpose could be served by including the whole of the 15 yards in the circuit. It was decided, therefore, to select certain yards representative of the whole circuit, and attention was directed mainly to Mundijong, Yarloop, Holyoake, and Jarrahwood, on account of their localities and other features which required special study.

It was mentioned in the bulletin which was issued last year that it dealt with the evidence at the end of the first year's investigations, and that the work would be continued into the year 1927. It was considered essential that, in order to avoid the effects of seasonal peculiarities, confirmation of the first year's indications should be obtained from data collected during a second year.

The effect of two summers upon boards which have been stacked for seasoning was a matter regarding which reliable information was required, and co-operation from sawmillers enabled experiments to be continued last summer on sample boards, which had been placed in stacks during and prior to the previous summer.

A subject of considerable importance, to which, during the first year, through lack of time, no attention could be given, has been brought to the fore during this year. Moisture distribution, throughout the thickness of the board, is referred to. The comparative dryness of the middle and outer portions of the board during the summer, and the extent of reabsorption in different portions of the board during winter, are factors which should be of considerable interest to all who are concerned with the air seasoning of timber, and it is hoped that some light may be thrown on these matters. At the same time, case-hardening tests have been carried out, and it may be mentioned that, contrary to general opinion, there has been remarkably little evidence of this seasoning fault.

Suggestions have been made that ringbarking of trees about 12 months before felling might prove to be advantageous. In the Jarrahwood district a tree which had been ringbarked about a year previously was felled, and in moisture content it was found to be, of anything, higher than the average. Boards were cut from this log and stacked along with sample boards, which are being periodically reweighed, and have, up to the present, shown no unusual features.

It is to be regretted that no effort has been made amongst the sawmillers to provide efficient covering for their stacks. The reabsorption of moisture due to winter rain can be but faintly appreciated, or steps would have been taken to remove one of the most serious causes of the undeserved criticism of Jarrah, due to the fact that the best methods of seasoning have not been adopted. This is one of the most obvious, and, at the same time, most damaging of the defects of seasoning practice in this State, and it is to be hoped that sawmillers will adopt this improvement, which would bring about a marked improvement in the quality of their seasoned goods.

The last circuit of this test was carried out in July, and the second report is being prepared.

An investigation to be desired, the importance of which is being borne in mind, is the laying down of special stacks for the investigation of certain factors, which have not been studied owing to the lack of suitable conditions.

##### *Kiln Seasoning.*

From the standpoint of the sawmiller, the problem of seasoning consists in the selection of the most efficient methods of drying consistent with quality of product, in the technique required for the successful practice of these methods and in the care of seasoned timber. To meet the demand for information of this nature a handbook on seasoning has been prepared, and is now ready for the printer. This deals extensively with the theory of seasoning methods suited to Western Australian conditions, and the design, construction and operation of suitable types of kilns. Those features which appeal to the timber consumer have also received attention.

Commercial tests with the Clarke kiln, the new type developed particularly for the treatment of flooring timbers, have been even more satisfactory than the tests on an experimental scale, and a plant of one commercial kiln installed at Pilgrim's Mill, about a year ago, has already been increased to a battery of four kilns to take practically the whole flooring output of the mill. Further experiments with the experimental kiln on the seasoning of Karri and

Blackbutt flooring boards have proved that, with both of these timbers, very satisfactory results can be obtained. The combined air and kiln seasoning process used with this kiln necessitates a considerable amount of handling of the timber, and while, even with the use of no other equipment than standard kiln trucks, the proposition is a profitable one, there can be no doubt that with the provision of a suitable handling system, it would become very attractive indeed. Investigation into this question of handling is urgent, for it is reasonable to suppose from the interest evinced in the process that success in this connection would result in the general adoption throughout the State of this method for the seasoning of flooring.

#### *Preservative Coatings.*

Although the tests under this heading have been but of a preliminary nature, the interest which has shown itself in them is ample proof that many of the present transparent weatherproof coatings for jarrah give far from satisfactory results under local conditions. In the previous report it was mentioned that drying oils were proving superior to non-drying oils. Further exposure to the weather has undoubtedly demonstrated that the former are far more effective, but a disappointing feature is that no coating can be regarded as being satisfactory. Even those whose durability was the greatest can scarcely be regarded as having a life greater than two years, when subjected to sun and rain.

Inspection of the deteriorated coatings, however, seems to indicate that failure takes place in the first place over longitudinal sections of pores and over the transverse sections of medullary rays. It would therefore appear that, if some means could be found of filling the grain before treatment, cheaply and efficiently, without marring the appearance, the life of the coating could be prolonged considerably. This apparently profitable line of investigation will be followed when staff becomes available.

#### *Chemical Investigations.*

(Officer-in-Charge—C. R. Kent, B.Sc.)

##### *Preservation.*

Mention was made in the last annual report of the development of a process to replace the old powellising process for the preservation of Karri. The new process has now been patented in several countries under the name of "Fluarising."

After a few further experimental tests the process was started on a commercial scale at the powellising plant, Pemberton. The results of these commercial tests have fulfilled the expectations engendered by laboratory and small scale experiments. Since the commencement of treatment at Pemberton approximately 5,000 loads of Karri have been fluarised. Fluarising is a much cleaner process than powellising, and, from a working point of view, this is a decided advantage.

A laboratory with suitable equipment has been added to the Pemberton plant in order to ensure strict control of the process which is being run under the supervision of the Forests Department.

Tests carried out regarding the corrosive capacity of fluarised timber indicate that there is no increase

in corrosive power to iron or copper over that of untreated Karri. The cost of treatment agrees with the original estimate very closely, being if anything slightly lower.

Test sleepers of fluarised Karri have been sent to India for experimental purposes, and it is hoped to lay test sections in the State railway lines in the near future. On the whole the process has been well received, but a few conservative consumers still insist on the powellised Karri. This introduces much difficulty into the control of the plant which is not designed for the running of two different processes.

The problem of the preservation of fence posts is under consideration, and for this purpose the most suitable timber appears to be Gimlet. The possibility of using creosote for such preservation is being given particular attention, and several samples of available material have been examined.

Several Australian and some foreign creosotes were investigated, and some were found totally unsuitable for the purpose. The best results were obtained from creosote manufactured locally by the Electricity and Gas Department, the cost of which was also the lowest of those considered.

#### *Tannin Extract Plant.*

In conjunction with the Council for Scientific and Industrial Research, the Forests Department is investigating the tannin resources of the State, with a view to obtaining extracts of commercial value.

Arrangements have been made with the University of Western Australia for the erection of a semi-commercial extract plant on the University grounds at Crawley. The major portion of the plant has been supplied by the Council for Scientific and Industrial Research, and the cost of completion, erection, and running of the plant is being borne jointly by the Council and the Forests Department. The Council has arranged also to supply the services of a trained investigator, who is due to arrive towards the end of September, 1927.

The importance of the work may be gauged from the fact that tannin extract is not manufactured in the Commonwealth on a commercial scale. Western Australia is perhaps the most favourable field for such an investigation, possessing as it does such a wide range of tannin containing materials. Those which will receive first consideration are Karri bark and Marri kino (red gum), and particular attention will be given to the possibility of preparing blended extracts.

The building to house the plant, together with a laboratory and office, is nearing completion, and practically all the machinery is on hand. It is estimated that the plant should be ready to commence operation some time during October, 1927.

#### *General.*

An investigation by the Council for Scientific and Industrial Research on the production of power alcohol from Karri waste was continued. The results obtained were hopeful, but further work has been postponed pending the arrival of necessary equipment from England.

*Botanical Investigations.*

(Officer-in-Charge—W. E. Champion.)

*Marri Kino Investigation.*

The early diagnosis of the formation of "gum veins" in Marri (*Eucalyptus calophylla*) as a pathological phenomenon following injury to the cambium has been confirmed after numerous experiments, having as their object the promotion of "gum vein" development from which a flow of kino may be secured. A system of single axe cuts through the bark to the cambium has been found the most effective. Cuts made with a single blow of the axe, in vertical overlapping rows, each cut being about two feet from the last, is recommended. In this way the formation of long peripheral "gum veins" is induced, and weak points in the bark remain for the escape of the kino. Results have indicated that a bark impregnated with "crystalline kino" containing 45 per cent. kino (30 per cent. tannin) can be collected in quantities 12 months after the cuts are made. Supplies of this highly impregnated outer bark are estimated to cost between £5 and £10 per ton on trucks, Perth.

Periodic retapping, either monthly or quarterly, was not found to accelerate appreciably the rate of flow or total quantity of gum obtained in the first 12 months after the original tapping, which should be carried out during the months of September to February.

*Nomenclature of Sandalwood.*

A paper on the systematic position of the Australian genus *Fusanus* was prepared by Messrs. W. E. Champion and C. A. Gardner, and forwarded to the authorities of the Royal Botanic Gardens, Kew, for criticism. A reply was received supporting the contention that, according to the rules of nomenclature, the name *Fusanus* R.Br. could not continue to be correctly applied to the species dealt with, but stating that whether the species should be returned to the genus *Santalum*, as suggested in the paper, or whether they should form a distinct genus with a new name, was a matter of opinion.

Subsequently a paper appeared in the Kew Bulletin (Vol. 5, 1927), by T. A. Sprague and V. S. Summerhayes, which in dealing with taxonomy and nomenclature covered practically the same ground as Champion and Gardner's earlier paper, but in which an opposite conclusion was expressed. Without bringing forward any new evidence, Sprague and Summerhayes have arbitrarily placed the Western Australian Sandalwood of commerce under the reinstated genus *Eucarya*, T. L. Mitch., thus creating still greater confusion. Pending a thorough examination of the associated genera, there would appear greater justification for following de Candolle, F. von Mueller, and C. Moore as suggested by Champion and Gardner, and adhering to the name *Santalum spicatum*.

6.—WORKING PLANS AND TOPOGRAPHICAL SURVEYS.

*Working Plans.*

Eleven new Working Plans, covering an area of 357,486 acres, were approved by the Governor in Executive Council during the year. The total area now under Working Plans is 660,200 acres.

A general Working Plan, governing the permissible cutting operations only over approximately 390,000 acres of Karri forest has been prepared, and now awaits the approval of the Governor in Executive Council.

The following is a list of the Working Plans approved during the year:—

No. 19, Applecross .. ..	acres	2,328
No. 21, Myalup .. ..		4,838
No. 26, Wuraming .. ..		12,060
No. 28, Pindalup .. ..		21,520
No. 29, Upper Capel .. ..		25,000
No. 30, Harrington .. ..		23,300
No. 32, Sussex .. ..		27,300
No. 34, Mullalyup .. ..		19,900
No. 38, Churchman's Brook ..		16,000
No. 39, Jarrahdale .. ..		205,240
		<hr/>
		357,486
		<hr/>

*Topographical Surveys.*

Topographical surveys were carried out over 273,950 acres of forest country, involving 2,834 miles of traverse, at a total cost of £3,365, or £1 3s. 9d. per mile. To carry out this work six camps have operated during the year and, with the exception of 7,550 acres of Karri forest, the work has been over Jarrah forest.

Eleven new lithographs have been published during the year; one on a scale of 80 chains to the inch and 10 on a scale of 20 chains to the inch.

Forest maps have now been prepared of practically all accessible forest country where it is proposed to start work in the immediate future. In order to provide ties for future compass work in less accessible country, it is proposed to employ a licensed surveyor to map in main features and thereby provide base lines for more detailed work in the future.

7.—ARBORICULTURE.

During the season which ended on 31st August, 1926, 314,659 trees were distributed by the Hamel Forest Nursery. Of these 59,114 were sold to the public at cost price. This was an increase of 2,954 over the previous season's sales. In addition, 5,596 trees were distributed free to public bodies and charitable institutions, and 249,949 were supplied to departmental plantations and arboreta.

The most popular trees with the public are the pines, especially *Pinus insignis*. Following these come Sugar Gums, Red Flowering Gums, Wattles, and Pepper trees in that order.

The Cypress are also fairly popular, especially *Cupressus macrocarpa* and *Cupressus lusitanica*. In respect to these two trees, it is rather interesting to note the gradual decline in favour during the last few seasons of *Cupressus macrocarpa* and the corresponding rise of *Cupressus lusitanica*, due, no doubt, to the realisation that, though the former is somewhat hardier, it is not so long lived as the latter.

CHAPTER V.

1.—SILVICULTURE.

*Jarrah.*—No alterations have been made in methods of carrying out regeneration operations under the Group Selection System. As the results of the work have become apparent, it has been found that greater reliance can be placed on advance seedling and coppice growth for a full stocking. In many cases it has become unnecessary to wait for a seed year and,

consequently, possible to carry out the final burn in the summer following the treatment.

There has been a marked absence of seedlings throughout the Jarrah belt in the winter of 1927. In indications point to a satisfactory seeding in small confined areas during the coming summer.

The development of seedling Jarrah is extremely slow above ground during the first few years after germination. Extensive root development takes place characterised by the development of a long tap root, and the pair of woody nodules at ground level common to Eucalypts which coppice freely are well developed at the end of the second summer, but, even at the end of the third year, the foliage may be limited to a few tough leathery leaves.

*Karri*.—The flowering of Karri at Big Brook continues intermittently. During the past 18 months trees have been observed carrying buds, flowers and fruit in all stages of development, and several stages on the same tree have not been uncommon. It is probable that the cumulative effect over a period of two to three years may be regarded as a general seeding, and it is proposed to burn one-half of the area treated and awaiting a "final burn" next summer, and hold the balance until the following summer. The problem of determining the crop of ripe fruit on the seed trees at any time is greatly complicated by the great height of the trees and the smallness of the seed vessels.

During sawmilling operations on the Big Brook Working Circle, one acre of virgin Karri forest measured during falling operations was found to be carrying 19,787 cubic feet of log timber measured in the round. The number of trees felled was 11, which were evenly spaced on the acre.

These figures are interesting as indicating the high volume yield of Karri, as this was a normal acre of first-class Karri forest.

*Tuart*.—The most successful and economical method of securing an even stocking has been transplanting natural grown seedlings from an ash bed to adjoining blanks during the winter following germination. Satisfactory results have been secured by raising seedlings in small bamboo tubes in a nursery and planting out in the forest as nine-month seedlings, but it is anticipated that better and cheaper results will be secured by transplanting from ash beds provided sufficient seed is obtainable. It will be necessary to heap sufficient debris at more or less regular intervals to provide sufficient ash beds on which a quantity of seed will be broadcast shortly after the burn. Transplanting 12 to 18 months later will be carried out by first opening up pits in the desired position, and moving the seedling from the ash bed with a ball of earth, using a circular spade specially sharpened for the work.

*Mallet*.—Despite the lower rainfall in the mallet bark habitat (18in. to 22in.) results indicate that, even on the driest ridges, satisfactory results are likely to be obtained from spot sowing. A heavy burn prior to sowing and a supply of ash are found to have an important effect on survival during the first summer, and, in view of the light nature of the clearing on much of the natural mallet country, complete clearing is now being carried out prior to sowing. The mallet has extremely small and fine cotyledons compared with Jarrah and Marri, but shows rapid development after germination.

*Sandalwood*.—Heavy rains during March, 1927, on the Eastern Goldfields, resulted in germination of portion of the Sandalwood nuts which had been sown at intervals during the previous two years, and an analysis of the factors influencing germination has been made by Mr. G. E. Brockway, Divisional Forest Officer. The conclusions briefly summarised hereunder are tentative, and are being further tested in series of experimental sowings on a number of Sandalwood reserves in the district.

(a) *Quality of Soil*.—Observations this year have pointed to the fact that, in heavy flats where large quantities of water collect, results are not so good as on lighter soils where the water soaks in more rapidly. This is apparently due to the surface layers of the soil which, when wet, form an impervious layer on the surface and, when dry, they crack and flake and dry out rather rapidly. It is obvious that, although some flats give good results, each one must be selected on its own merits and not simply because it is a flat.

Germination in the sandy plot at Calooli has given very poor results up to date.

It is not uncommon in the better class light and medium soils to find a growth of grass and herbage. This protects the young plants, and instances have been discovered where it has acted as host, and thereby enabled the young Sandalwood to keep growing and eventually to find a more permanent host.

(b) *Soil Covering*.—This plays a considerable part in ameliorating conditions in dry weather. This must not be mixed with the soil, as it assists drying, but should be cleared away before the seed is sown and raked back as a mulch.

(c) *Flow of Water*.—In some areas a large portion of the water which actually falls flows away. This occurs usually on steep hillsides. In the flats some of this water collects, and sometimes in heavy rains causes a considerable flow. If this is particularly heavy, leaf litter is removed, loose earth is washed out from holes where seed has been sown, while the debris carried down will break off young growing plants.

(d) *Nature of Hosts*.—The root systems of various hosts vary considerably, e.g., tan wattle roots penetrate fairly deep, while cassia, jam, carara, etc., have root systems which spread considerably and are, in many cases, close to the surface.

Trees with big tops protect the young plants from the sun, but plants grown under such conditions are very green and succulent, and suffer considerably from the rabbits which seek the shade in the hot weather, e.g., Carara is, if protected, almost an ideal host, but, owing to the dense shade it throws, it is used very largely by the rabbits in the hot weather, and, consequently, very few plants remain under it.

#### *Afforestation.*

Careful observation continues to bear out information previously published concerning the importance of a soil organism, probably a mycorrhizal fungus, on the development of young pines in the nursery and their survival after planting out. The fungus believed to be associated with the pines has been further examined by G. H. Cunningham, of New Zealand, and identified as *Rhizopogon roseolus* (Cda.) Hollos.



Soil cultivation prior to planting is another factor which has a considerable influence on survival during the first summer on certain soil types. Results have shown the necessity for thorough cultivation immediately around the planting hole on all soil types which carry a crop of low woody shrubs.

Particular attention has been paid to the coastal sand plain type, and an investigation of root development and soil moisture contents on ploughed and unploughed land throughout the year is now being carried out.

Seed of the following exotics has now been obtained, and is being tested in localities where it is considered that the respective species may have some chance of proving of commercial value for plantation purposes:—

*Picea sitchensis*, *Pinus Banksiana*, *P. caribaea*, *P. Coulteri*, *P. echinata*, *P. insignis*, *P. Jeffreyi*, *P. Lambertiana*, *P. laricio*, *P. longifolia*, *P. palustris*, *P. muricata*, *P. ponderosa*, *P. strobus*, *P. taeda*, *P. Torreyana*, *P. patula*, *P. luchuensis*, *Taxodium distichum*, *Librocedrus decurrens*, *Pseudotsuga taxifolia*, *Sequoia sempervirens*.

Results of experimental plantings are not yet available, but several species, particularly *P. palustris*, *P. caribaea*, *P. taeda*, and *P. Coulteri* have proved very hardy, and show good growth after having been planted out for two summers.

## 2.—FIRE CONTROL NOTES.

Evidence is accumulating to show that systematic controlled burning is a difficult and expensive operation. To define a creeping fire and show cases in which accidental fires have resolved themselves into a slow surface fire running through a mature forest or pole stand with a minimum of apparent damage to the forest is easy, but to obtain similar results systematically over extensive areas is likely to prove difficult and costly. Controlled burning must always play an important part in fire protection work, and without doubt better results will be secured as resident overseers are established on their Blocks and gain experience in burning methods and burning weather, but to secure uniform and satisfactory results will always remain the most difficult problem associated with fire control work.

For the purpose of starting controlled fires, the kerosene pressure torch constructed with a reservoir of two gallons carried on the back has been found very useful, and is now standard equipment in all districts.

After numerous experiments with various types of harrows to be used for opening up tracks for controlled burning work and back firing, Forester A. R. Sharp has succeeded in evolving a horse-drawn scraper which is giving very satisfactory results, particularly in ironstone gravel country. This scraper may be constructed by any country blacksmith, and consists of a six-foot length of railway rail (45 or 60 lbs.) bent to form two sides of a triangle. The angle at the apex is approximately 60 degrees. A piece of flat iron is bolted vertically to the two sides to take the wear, and straps across the bottom enable a load to be placed on the scraper when found necessary.

One man and a horse can, by the use of this implement, rake miles of track in a day, eliminating the high cost of hand-raking around areas to be burnt.

The most interesting fact in connection with fire control measures has been the steady decrease in the number of outbreaks during the last three years in centres where intensive work is in progress. A number of factors have contributed to this satisfactory development, and there is no doubt that, as the local population in each locality finds in the tended forest a profitable source of employment, the same results will be experienced in other districts.

## CHAPTER VI.

### 1.—LEGISLATION.

The amending Act to the Forests Act, 1918, which was assented to in 1925, and which provided for the exclusion of revenue from Sandalwood from the provisions of Section 41 (2) of the principal Act, and the payment into a special account at the Treasury of one-tenth of the revenue received from Sandalwood, or £5,000, whichever shall be greater, for the reforestation of Sandalwood, was again continued until 30th June, 1927, by the Forests Act Amendment Act, 1926.

*Amendments to Regulations.*—Regulations were gazetted on 22nd April, 1927, to deal with the granting of Bee Ranges and Apiary Sites on Crown lands. There were no other important amendments during the year.

### 2.—ADMINISTRATION.

The work of standardising procedure in both the field and the office has been carried on, and further parts of the Forester's Manual are now ready for the printer. Early publication of the following parts is being arranged:—

- Part II.—Reforestation.
- Part III.—Fire Control.
- Part IV.—Afforestation.
- Part V.—Expenditure Control and Periodic Reports.

In preparing these parts, discussion of silvicultural principles has been largely avoided and, where experience renders it possible, definite instructions for the guidance of untrained officers have been given. In consequence, these publications will not serve as a text book of forestry, but they will meet an urgent need which has been inadequately met in the past by a series of mimeographed circulars.

The following changes in staff took place during the year:—

#### (a) Professional Division.

*Resignations.*—Messrs. H. R. Gray and A. Rule resigned in order to take up positions at the Federal Forestry School at Canberra.

Mr. J. E. Cummins was awarded a travelling scholarship by the Council for Scientific and Industrial Research, and is at present at Madison Forest Products Laboratory, U.S.A.

*Appointments.*—Three graduates of the Adelaide University School of Forestry were appointed Assistant Divisional Forest Officers.



Mr. C. R. Kent, B.Sc., was appointed Officer-in-Charge of Chemical Investigations.

*Reclassification.*—Messrs T. N. Stoate and A. C. Shedley, senior professional officers, were given the status of Assistant Conservator.

(b) *Field Staff.*

Foresters W. Donovan and P. E. Port, after completing many years of excellent service for the Department, retired on reaching the age limit.

The Department lost the services of a valuable officer by the accidental death of Forester C. H. Turner.

The resignations of two other Foresters and three Assistant Foresters were accepted, and the services of two Assistant Foresters were dispensed with. One officer was promoted to "B" Grade Forester and seven officers were promoted to "C" Grade Foresters.

Five Assistant Foresters were appointed. Two forest guards resigned and four apprentices received promotion to forest guard.

(c) *Head Office Staff.*

Five officers were appointed, three transferred, and three resigned.

The whole staff of the Department, which now numbers 117, have given excellent service during the year, and their interest and enthusiasm for their work has made it possible to claim that the Forests Department of this State now occupies a leading place among the Forest Services of Australia, both in regard to scope of operations and amount of effective work being accomplished annually.

S. L. KESSELL,  
Conservator of Forests.

Forests Department,  
Perth, 2nd September, 1927.

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## APPENDIX 1a.

General Statement of Revenue and Expenditure, for the Year ended 30th June, 1927.

DR.				30th June, 1927:				CR.				
				£	s.	d.	£	s.	d.	£	s.	d.
To Log Royalty from Permits granted under Section 11 of "The Land Act, 1898" ...	42,133	8	1									
„ Log Royalty from Permits granted under "The Forests Act, 1918" ...	58,349	3	7									
„ Log Royalty from Leases and Concessions ...	24,882	18	1									
				125,365	9	9						
„ Sandalwood Revenue—												
Royalty ...	34,391	0	6									
Roots and Butts ...	8,841	17	1									
Cont. scated Wood ...	2,841	6	1									
				46,074	3	8						
„ Miscellaneous Royalties—												
Piles and Poles ...	631	7	7									
Hewn Sleepers (Forests Act) ...	19,205	15	8									
Hewn Sleepers (Land Act) ...	1,466	11	0									
Firewood ...	632	2	10									
Posts ...	161	15	9									
Illegally cut Timber ...	573	19	11									
Mining Timber ...	847	4	9									
Boronia ...	81	8	9									
Sundries ...	35	5	8									
				23,635	11	11						
„ Inspection Fees—												
Hewn Sleepers (Crown lands) ...	3,200	14	8									
Sawn Sleepers (Crown lands) ...	2,427	12	0									
Sawn Timber (Crown lands) ...	1,885	19	3									
Hewn Sleepers (Private Property) ...	11,033	0	5									
Sawn Sleepers (Private Property) ...	1,023	15	8									
Sawn Timber (Private Property) ...	1,108	11	3									
Piles and Poles ...	371	18	0									
Beams ...	491	4	3									
Miscellaneous ...	59	17	5									
				21,602	12	11						
„ Rents—												
Concession ...	50	0	0									
Leases ...	875	0	0									
Tramways ...	823	1	8									
Sawmill Sites ...	184	0	0									
Forest Leases ...	68	7	6									
Cottages ...	357	15	6									
				2,358	4	8						
„ Sales—												
Tuart ...	302	18	6									
Trees and Seeds ...	735	16	5									
Branding Hammers ...	258	16	0									
Illegally Cut Timber ...	100	17	8									
Sleepers (Direct Conversion) ...	532	11	4									
Huts (for Working Circles) ...	307	13	4									
Miscellaneous ...	21	4	1									
				2,259	17	4						
„ Miscellaneous Revenue—												
Registration Fees ...	477	2	11									
License Fees ...	404	17	3									
Exemption Fees ...	44	17	1									
Agistment Fees ...	70	13	0									
Sundries ...	213	12	8									
				1,211	2	11						
„ Total Collections ...				222,507	3	2						
Less amounts transferred—												
Group Settlement Department, 50 % of Royalties from Group Areas ...	7,776	15	4									
Sandalwood Trust Fund ...	5,000	0	0									
Mining Leases Royalty Account ...	847	4	9									
				13,624	0	1						
Net amount credited to Consolidated Revenue Fund ...				£208,883	3	1				£208,883	3	1



## APPENDIX 1d.

Mining Leases Royalty Account for Year ended 30th June, 1927.

Dr.				Cr.	
30th June, 1927:	£	s. d.	1st July, 1926:	£	s. d.
To Permanent Plant ... ..	21	19 9	By Balance brought forward ... ..	2,215	16 10
„ Sylvicultural Work ... ..	605	13 4	30th June, 1927:		
„ Administration ... ..	121	18 11	By Royalties collected during year ... ..	847	4 9
„ Grazing Control ... ..	0	14 6			
„ Fire Protection ... ..	77	16 10			
„ Maintenance Telephone Lines ... ..	1	12 8			
„ Maintenance of Roads ... ..	7	14 5			
„ Improvement Work ... ..	5	5 1			
„ Utilisation ... ..	46	19 2			
„ Raising Plants ... ..	7	14 9			
„ Clearing ... ..	2	0 4			
„ Preparation of Soil ... ..	79	10 11			
„ Formation of Firebreaks ... ..	52	18 5			
„ Maintenance of Firebreaks ... ..	21	3 6			
„ Balance carried forward ... ..	2,009	19 0			
	£3,063	1 7	1st July, 1927:	£3,063	1 7
			By Balance brought forward ... ..	2,009	19 0

## APPENDIX 1e.

Sandahwood Trust Fund for Year ended 30th June, 1927.

30th June, 1927:		£ s. d.		1st July, 1926:		£ s. d.	
To Administration and General Supervision ... ..	612	12 7	By Balance brought forward ... ..	5,184	2 11		
„ General Reconnaissance ... ..	703	7 9	30th June, 1927.	£			
„ Survey—External Boundaries ... ..	316	2 4	By Receipts in accordance with Forests Act 5,000				
„ Subdivision and Classification ... ..	140	3 6	Less adjustment with Treasury Dept. ... 100	4,900	0 0		
„ Fencing—Lakeside ... ..	698	18 2					
„ Demarcation ... ..	106	9 2					
„ Sowing—Lakeside ... ..	189	4 2					
„ Patrol ... ..	192	16 8					
„ General Equipment ... ..	2	17 3					
„ Bending—Supervision ... ..	36	0 0					
„ Rabbit Poisoning—Bending ... ..	69	16 9					
„ Huts—Bending ... ..	30	4 8					
„ Rabbit Poisoning—Karamindie... ..	23	4 10					
„ Incidentals ... ..	231	10 11					
„ Balance carried forward ... ..	6,730	14 2					
	£10,084	2 11	1st July, 1927:	£10,084	2 11		
			By Balance brought forward ... ..	6,730	14 2		

## APPENDIX 1f.

Statement of Timber Inspected by the Inspection Branch of the Forests Department during the year ended 30th June, 1927.

Timber Inspected.	Inspection Fees.	
	Cubic Feet.	Amount.
Sawn sleepers ... ..	1,701,124	£ 3,451 7 8
Hewn sleepers ... ..	7,479,825	14,233 15 1
Sawn timber ... ..	937,842	2,994 10 6
Piles and Poles ... ..	58,482	371 18 0
Beams ... ..	(lineal feet) 65,243	491 4 3
Miscellaneous Timbers ... ..	(lineal feet) ...	59 17 5
	...	£21,602 12 11

**APPENDIX 1g.**  
*Revenue and Expenditure.*

The following statement shows the Revenue and Expenditure of the Department since its inception in 1895:—

Year.	Gross Revenue.	Expenditure.					Total.
		Consolidated Revenue Fund.	General Loan Fund.	Reforestation Fund.	Mining Leases Fund.	Sandalwood Trust Fund.	
1st January to 31st December, 1895 ... ..	£ 3,175	£ 1,108	£	£	£	£	£ 1,108
1st January to 31st December, 1896 ... ..	4,839	2,021	...	...	...	...	2,021
1st January to 31st December, 1897 ... ..	12,320	3,490	...	...	...	...	3,490
1st January to 31st December, 1898 ... ..	30,150	3,356	...	...	...	...	3,356
1st January to 31st December, 1899 ... ..	17,000	2,438	...	...	...	...	2,438
1st January to 31st December, 1900 ... ..	15,526	2,649	...	...	...	...	2,649
1st January to 31st December, 1901 ... ..	18,478	2,747	...	...	...	...	2,747
1st January to 31st December, 1902 ... ..	18,753	4,301	...	...	...	...	4,301
1st January to 31st December, 1903 ... ..	20,478	3,789	...	...	...	...	3,789
1st January to 31st December, 1904 ... ..	20,019	4,193	...	...	...	...	4,193
1st January to 31st December, 1905 ... ..	18,480	5,090	...	...	...	...	5,090
6 months, 1st January to 30th June, 1906 ... ..	10,974	3,385	...	...	...	...	3,385
1st July, 1906, to 30th June, 1907 ... ..	22,783	6,208	20	...	...	...	6,228
1st July, 1907, to 30th June, 1908 ... ..	23,499	8,802	443	...	...	...	9,245
1st July, 1908, to 30th June, 1909 ... ..	29,484	9,031	584	...	...	...	9,615
1st July, 1909, to 30th June, 1910 ... ..	31,549	8,531	1,833	...	...	...	10,364
1st July, 1910, to 30th June, 1911 ... ..	37,477	8,863	2,888	...	...	...	11,751
1st July, 1911, to 30th June, 1912 ... ..	44,561	10,469	3,135	...	...	...	13,604
1st July, 1912, to 30th June, 1913 ... ..	48,237	11,463	3,842	...	...	...	15,305
1st July, 1913, to 30th June, 1914 ... ..	53,039	12,093	4,432	...	...	...	16,525
6 months, 30th June to 31st December, 1914 ... ..	22,906	5,469	1,063	...	...	...	6,532
1st January to 31st December, 1915 ... ..	45,726	8,870	1,399	...	...	...	10,269
1st January to 31st December, 1916 ... ..	29,821	9,575	911	...	...	...	10,486
1st January, to 31st December, 1917 ... ..	36,129	10,263	842	...	...	...	11,105
6 months, 1st January to 30th June, 1918 ... ..	22,113	6,199	268	...	...	...	6,467
1st July, 1918, to 30th June, 1919 ... ..	42,051	10,873	594	...	...	...	11,467
1st July, 1919, to 30th June, 1920 ... ..	59,220	12,962	...	7,241	...	...	20,203
1st July, 1920, to 30th June, 1921 ... ..	75,469	16,128	11,742	*50,673	...	...	78,543
1st July, 1921, to 30th June, 1922 ... ..	88,530	16,439	2,324	27,794	965	...	47,522
1st July, 1922, to 30th June, 1923 ... ..	87,658	15,246	1,779	21,563	238	...	38,826
1st July, 1923, to 30th June, 1924 ... ..	127,253	15,835	873	31,625	...	...	48,333
1st July, 1924, to 30th June, 1925 ... ..	182,764	17,816	1,000	‡65,497	778	1,648	86,739
1st July, 1925, to 30th June, 1926 ... ..	227,061	23,191	2,349	71,780	732	3,269	101,321
1st July, 1926, to 30th June, 1927 ... ..	222,507	23,192	2,958	72,645	1,053	3,471	103,319
Totals ... ..	1,750,029	306,085	45,279	348,818	3,766	8,388	712,336

\* This amount includes the sum of £15,448 paid to liquidate the advances made to the Department from Land Improvement Loan Fund.

‡ Includes £9,316 recouped to Treasury on account of Sandalwood Trust Fund.

It will be seen from the above statement that to the 30th June, 1927, the revenue exceeded the total expenditure by the sum of £1,037,693.

**APPENDIX 2a.**

*Production of Mill Logs for Year ended 30th June, 1927.*

Species.	Crown Lands.						*Private Property.		Total.	
	Concessions.		Leases.		Permits.		In Log.	In square.	In Log.	In square.
	In Log.	In square.	In Log.	In square.	In Log.	In square.				
Jarrah ... ..	cub. ft. 3,304,950	cub. ft. 1,156,732	cub. ft. 9,191,151	cub. ft. 3,216,903	cub. ft. 21,544,128	cub. ft. 7,540,445	cub. ft. 1,907,769	cub. ft. 667,719	cub. ft. 35,947,998	cub. ft. 12,581,799
Karri ... ..	...	...	...	...	3,998,513	1,079,058	574,484	153,111	4,570,997	1,234,169
Tuart ... ..	...	...	...	...	19,424	6,798	26,021	9,108	45,445	15,906
Wandoo ... ..	...	...	...	...	2,704	946	50,907	17,818	53,611	18,764
Banksia... ..	...	...	...	...	4,209	1,473	2,679	938	6,888	2,411
Sheoak ... ..	...	...	...	...	3,414	1,195	...	...	3,414	1,195
Coolibah ... ..	...	...	...	...	32	11	...	...	32	11
Totals ... ..	3,304,950	1,156,732	9,191,151	3,216,903	25,570,424	8,629,926	2,561,860	850,694	40,628,385	13,854,255

NOTE.—Percentages of recovery of sawn timber from the round are:—Jarrah, 35 per cent.; Karri, 27 per cent.; and other timbers, 35 per cent.

\* Reported to Forests Department.

## APPENDIX 2b.

*Inspected Hewn Timber obtained during Year ended 30th June, 1927.*

Species.	Crown Lands.		Private Property.	Total.
	Concessions.	Permits.		
Jarrah ... ..	cubic feet. 28,931	cubic feet. 1,729,387	cubic feet. 4,839,080	cubic feet. 6,597,398
Wandoo ... ..	...	5,898	919,766	925,664
Total ... ..	28,931	1,735,285	5,758,846	7,523,062

NOTE.—The average recovery by the hewer is 20 per cent. of the log. The above total represents 37,615,310 cubic feet in the round.

## APPENDIX 2c.

*Total Production of Timber for Year ended 30th June, 1927.*

(Exclusive of Mining Timber, Firewood and Piles and Poles.)

Appendix Reference.	In the Log.	In the square.
Total Mill Logs (Appendix 2a) ... ..	cubic feet. 40,628,385	cubic feet. 13,854,255
Total Hewn Timber (Appendix 2b) ... ..	37,615,310	7,523,062
Total ... ..	78,243,695	21,377,317

## APPENDIX 2d.

*Sandalwood pulled during the Year ended 30th June, 1927.*

Locality.	Quantity in Tons.
From Crown Lands, South of 26th Parallel of South Latitude ... ..	5,947
From Crown Lands, North of 26th Parallel of South Latitude ... ..	153
From Private Property ... ..	559
Total ... ..	6,659

## APPENDIX 2e.

*Forest Produce, not elsewhere included, obtained under permit from Crown Lands during the Year ended 30th June, 1927.*

Description of Forest Produce.	Number.	Lin. Feet.	Cubic Feet.	Weight.	
				Tons.	Lbs.
Barks and Gums ... ..	...	...	...	16	...
Blackboy ... ..	...	...	...	120	...
Boronia Blossom ... ..	...	...	...	...	18,345
Fencing Posts and Rails ... ..	46,694	...	...	...	...
Firewood and Charcoal ... ..	...	...	...	51,518	...
Mining Timber (Collie) ... ..	...	...	202,616	...	...
Piles and Poles ... ..	...	37,245	...	...	...
Total ... ..	46,694	* 37,245	* 202,616	* 51,654	* 18,345

\* Includes only South-West Division of State.

## APPENDIX 2f.

Mining Timber and Firewood Consumed during Year ended 30th June, 1927.

Locality.	Wood Fuel Consumed.	† Mining Timber Consumed.	
	tons.	tons.	cubic feet
Greenbushes Mining Fields ... ..	3,675	...	...
Collie Coal Fields ... ..	...	...	202,616
Metropolitan Area ... ..	170,000	...	...
Golden Mile, Coolgardie, Norseman, Kunanalling, Kanowna, Mt. Monger, St. Ives and Carbine ... ..	168,220	3,656	22,222
Northern Goldfields, Broad Arrow, Ora Banda, Comet Vale, Menzies, Kookynie, Laverton, Mt. Morgans, Leonora, and Mt. Magnet Districts ...	20,761	619	...
Southern Cross, Marvel Loch, Mt. Rankin, Burbridge, Westonia, Manxman, and Bullfinch Districts ... ..	3,512	3	...
Goldfields Water Supply Pumping Stations, Nos. 1 to 8 ... ..	12,199	...	...
Railway Pumping Stations (Northern Line) ... ..	100	...	...
Eastern Goldfields Districts (household) ... ..	17,717	...	...
Eastern Goldfields (bakers) ... ..	869	...	...
Eastern Goldfields Breweries, Cordial, Confectionery, Soap Factories, and Salt-works ... ..	2,537	...	...
Eastern Goldfields Batteries ... ..	482	...	...
Eastern Goldfields Electric Power and Light ... ..	70,247	...	...
Eastern Goldfields Producer Plants and Blacksmiths (as charcoal) ... ..	865	...	...
Engine Wood (used on Wood Lines) ... ..	21,000	...	...
Sleepers for Goldfields Firewood Lines ... ..	* 62,000	...	...
Total ... ..	492,184	4,278	224,838

\* Number of Sleepers not included in total of volumes.

† Exclusive of Mining Timber and Firewood consumed on the Murchison and other Distant Goldfields not mentioned above.

## APPENDIX 2g.

Exports of Timber, Tanning Barks, Sandalwood, and Essential Oils for the Year ended 30th June, 1927.

Item and Country of Destination.	Quantity.	Value.	Item and Country of Destination.	Quantity.	Value.
<i>Timber, Dressed, N.E.I.—</i>	cubic feet.	£	<i>Sandalwood—</i>	cwt.	£
Commonwealth of Australia ... ..	17,774	4,295	United Kingdom ... ..	500	858
United Kingdom ... ..	2,450	108	British Malaya ... ..	6,928	10,784
British Malaya ... ..	11,717	1,851	Ceylon ... ..	234	533
Sweden ... ..	2,483	367	Hong Kong ... ..	44,866	65,453
Total ... ..	34,424	6,621	India ... ..	4,880	8,831
<i>Timber, Undressed—</i>			China ... ..	78,785	112,884
Commonwealth of Australia ... ..	4,521,715	563,731	Java ... ..	220	403
United Kingdom ... ..	646,808	77,989	Total ... ..	136,413	199,746
British Malaya ... ..	547,800	67,322	<i>Tanning Barks—</i>		
Ceylon ... ..	728,766	98,950	Commonwealth of Australia ... ..	24,982	13,274
Egypt ... ..	1,600	192	Germany ... ..	2,050	1,272
India ... ..	1,080,883	130,772	Holland ... ..	2,050	1,272
Mauritius ... ..	24,392	2,927	Total ... ..	29,082	15,818
New Zealand ... ..	1,096,708	134,375	<i>Essential Oils—</i>		
South African Union ... ..	3,594,850	531,509	Commonwealth of Australia ... ..	...	3,993
Belgium ... ..	17,225	2,259	United Kingdom ... ..	...	18,294
Germany ... ..	15,333	1,876	British Malaya ... ..	...	78
Holland ... ..	88,475	10,839	Hong Kong ... ..	...	1,800
China ... ..	181,283	21,787	Italy ... ..	...	5
Total ... ..	12,545,838	1,644,528	Netherlands E. Indies ... ..	...	523
<i>Casks and Shooks—</i>			China ... ..	...	672
*Commonwealth of Australia ... ..	...	3,331	Japan ... ..	...	746
<i>Wood Manufactures, N.E.I.—</i>			United States of America ... ..	...	196
*Commonwealth of Australia ... ..	...	4,401	Total ... ..	...	26,307
United Kingdom ... ..	...	3	Total All Exports ... ..	...	1,901,747
New Zealand ... ..	...	14			
Java ... ..	...	3			
Total ... ..	...	4,421			
<i>Staves, Undressed—</i>					
Commonwealth States ... ..	...	975			
Total Timber Exports ... ..	...	1,659,876			

\* A very large proportion of this amount represents empty returns.



## APPENDIX 2h.

Imports of Timber, Tanning Substances and Essential Oils for the Year ended 30th June, 1927.

Item and Country of Origin.	Quantity.	Value.	Item and Country of Origin.	Quantity.	Value.
<i>Timber, Dressed, N.E.I.—</i>	cubic feet.	£	<i>Spokes, Dressed—</i>	cubic feet.	£
Commonwealth of Australia	736	395	Commonwealth of Australia	15,608	504
Norway	13,733	1,786	United States of America	3,500	99
Sweden	43,942	5,119	Total	19,108	603
Total	58,411	7,300			
<i>Timber, Undressed, N.E.I.—</i>			<i>Barrels, Casks, etc.—</i>		
Commonwealth of Australia	96,183	25,975	United Kingdom	...	3
British Malaya	808	170			
Canada	85	18	<i>Brushmakers' Woodware and</i>		
New Zealand	183	28	<i>Wood Tool Handles—</i>		
South African Union	75	51	Commonwealth of Australia	...	1,985
Borneo	64	26	United Kingdom	...	201
Latvia	1,792	218	France	...	7
Norway	2,572	364	Norway	...	325
Russia	3,881	740	Sweden	...	3
Sweden	2,750	407	United States of America	...	8,392
New Caledonia	590	318	Total	...	10,913
Japan	2,716	1,037			
Phillipine Islands	7,033	2,059	<i>Clothes Pegs—</i>		
United States of America	361,834	50,676	Commonwealth of Australia	...	1,572
Total	480,566	82,087	United Kingdom	...	1
			Sweden	...	23
<i>Timber for making Boxes and</i>			United States of America	...	97
<i>Doors—</i>			Total	...	1,693
Commonwealth of Australia	14,625	1,725			
Germany	592	86	<i>Doors of Wood—</i>		
Holland	325	156	Commonwealth of Australia	1,441	1,589
Norway	3,275	575	United States of America	2,556	1,944
Sweden	38,617	5,947	Total	3,997	3,533
Latvia	11,350	1,271			
United States of America	1,219	136	<i>Oars and Sculls—</i>		
Total	70,003	9,896	United Kingdom	...	51
			Norway	...	3
<i>Architraves and Mouldings—</i>			Japan	...	52
United Kingdom	...	20	United States of America	...	274
Germany	...	81	Total	...	380
Czecho Slovakia	...	12			
United States of America	...	9	<i>Picture and Room Mouldings—</i>		
Total	...	122	Commonwealth of Australia	...	2,069
			United Kingdom	...	230
<i>Laths for Blinds—</i>			Norway	...	67
Commonwealth of Australia	...	45	Germany	...	41
United Kingdom	...	1	Total	...	2,407
United States of America	...	40			
Total	...	86	<i>Wood Manufactures, N.E.I.—</i>		
			Commonwealth of Australia	...	12,627
<i>Logs, not sawn, and Spars in</i>			United Kingdom	...	3,432
<i>the rough—</i>			British Malaya	...	80
United Kingdom	8	3	Canada	...	570
Norway	8	3	India	...	11
Total	16	6	South African Union	...	1
			Ceylon	...	1
<i>New Zealand Pine—</i>			Belgium	...	4
New Zealand	27,393	7,712	Czecho Slovakia	...	27
			France	...	168
<i>Plywood and Veneers—</i>			Germany	...	987
Commonwealth of Australia	...	9,733	Holland	...	101
United Kingdom	...	42	Italy	...	7
Canada	...	24	Norway	...	1
France	...	583	Sweden	...	472
Germany	...	183	Switzerland	...	17
Holland	...	166	Java	...	2
Finland	...	24	China	...	9
Sweden	...	1	Japan	...	115
Japan	...	4,110	United States of America	...	1,688
Phillipine Islands	...	234	Total	...	20,320
United States of America	...	42			
Total	...	15,132	Total Timber Imports	...	162,193

## APPENDIX 2h.—Continued.

Item and Country of Origin.	Quantity.	Value.	Item and Country of Origin.	Quantity.	Value.
<i>Tanning Barks—</i>			<i>Essential Oils—</i>		
Commonwealth of Australia	cwts. 2,628	£ 2,119	Commonwealth of Australia	...	£ 498
South African Union	402	190	United Kingdom	...	383
Total	3,030	2,309	Ceylon	...	234
			India	...	43
			British Malaya	...	2
			Bulgaria	...	36
			France	...	638
			Switzerland	...	24
			Germany	...	18
			Italy	...	1,540
			Sicily	...	4
			Spain	...	36
			Holland	...	17
			Netherlands, E. Indies	...	2
			China	...	12
			Japan	...	574
			Java	...	2
			West Indies	...	5
			Paraguay	...	5
			United States of America	...	170
			Mexico	...	11
			Total	...	4,254
			Total, All Imports	...	175,418
<i>Tanning Extracts—</i>					
Commonwealth of Australia	...	349			
United Kingdom	...	296			
British Malaya	...	1,788			
India	...	438			
South African Union	...	369			
Italy	...	16			
France	...	247			
Norway	...	166			
Argentina	...	2,071			
Turkey	...	34			
Paraguay	...	730			
United States of America	...	158			
Total	...	6,662			

## APPENDIX 2i.

## Summary of Exports of Forest Produce since 1836.

Year.	Timber.		Sandalwood.		Tanning Bark.	Essential Oils.*	Year.	Timber.		Sandalwood.		Tanning Bark.	Essential Oils.*
	cub. ft.	Value.	Tons.	Value.	Value.	Value.		cub. ft.	Value.	Tons.	Value.	Value.	Value.
1836a...	10,000	£ 2,500	...	£	£	£	1882 ...	936,500	£ 93,650	9,605	£ 96,050	...	£
1837 ...	...	...	...	...	...	...	1883 ...	997,000	79,760	7,081	56,250	...	...
1838 ...	...	...	...	...	...	...	1884 ...	861,700	68,936	2,620	20,960	...	...
1839 ...	...	...	...	...	...	...	1885 ...	848,150	67,850	4,527	36,216	...	...
1840 ...	...	...	...	...	...	...	1886 ...	626,150	50,092	3,431	27,450	...	...
1841 ...	...	...	...	...	...	...	1887 ...	354,800	28,384	4,317	34,533	...	...
1842 ...	...	...	...	...	...	...	1888 ...	525,750	42,060	4,470	33,525	...	...
1843 ...	...	...	...	...	...	...	1889 ...	788,500	63,080	6,385	57,465	...	...
1844 ...	b	163	...	...	...	...	1890 ...	1,172,200	82,052	5,136	51,355	...	...
1845 ...	...	...	4	40	...	...	1891 ...	1,273,950	89,179	3,760	37,600	...	...
1846 ...	2,550	255	32	320	...	...	1892 ...	1,082,650	73,419	5,716	42,870	...	...
1847 ...	12,200	1,120	370	4,444	...	...	1893 ...	512,950	33,888	3,893	32,160	...	...
1848 ...	3,350	333	1,335	13,353	...	...	1894 ...	1,063,700	74,804	2,784	23,430	...	...
1849 ...	...	...	...	...	...	...	1895 ...	1,255,250	88,146	3,851	30,863	...	...
1850 ...	10,500	1,048	...	...	...	...	1896 ...	1,545,600	116,420	6,848	65,800	...	...
1851 ...	1,250	268	219	1,593	...	...	1897 ...	2,393,300	192,451	5,852	49,480	...	...
1852 ...	7,050	806	...	...	...	...	1898 ...	4,086,150	326,195	4,349	31,812	...	...
1853 ...	52,200	5,220	...	...	...	...	1899 ...	6,913,550	553,198	4,084	29,719	...	...
1854 ...	58,500	7,023	...	...	...	...	1900 ...	5,725,400	458,461	5,095	39,038	...	...
1855 ...	76,900	12,076	...	...	...	...	1901 ...	7,150,600	572,354	8,864	73,931	...	...
1856 ...	70,500	9,671	...	...	...	...	1902 ...	6,256,750	500,533	7,995	61,771	...	...
1857 ...	69,200	9,449	230	2,524	...	...	1903 ...	7,748,450	619,705	4,406	37,913	859	...
1858 ...	29,250	2,340	745	7,455	...	...	1904 ...	8,072,300	654,949	4,510	25,417	82,876	...
1859 ...	67,250	6,051	1,273	17,259	...	...	1905 ...	8,709,500	689,943	5,521	38,817	154,087	...
1860 ...	54,800	4,932	1,637	16,360	...	...	1906 ...	8,830,700c	708,993	8,848	70,958	140,720	...
1861 ...	27,750	2,497	2,558	24,945	...	...	1907 ...	6,409,550c	511,923	9,212	65,999	98,773	...
1862 ...	68,800	7,151	2,393	21,541	...	...	1908 ...	9,869,500c	813,591	9,564	76,668	79,934	...
1863 ...	32,900	2,963	2,807	25,265	...	...	1909 ...	10,830,450c	867,419	4,805	37,456	59,633	...
1864 ...	58,300	5,508	2,724	24,520	...	...	1910 ...	12,074,100c	972,698	8,228	70,775	93,733	...
1865 ...	183,950	15,693	1,686	13,490	...	...	1911 ...	12,449,500c	986,341	6,907	65,506	83,470	...
1866 ...	85,650	6,849	2,965	23,722	...	...	1912 ...	11,297,100c	903,396	3,154	27,533	49,094	...
1867 ...	56,750	4,541	2,305	18,442	...	...	1913 ...	13,619,350c	1,089,481	6,260	47,589	47,377	...
1868 ...	8,000	638	3,256	26,045	...	...	1914 ...	6,279,750c	502,153	4,702	39,800	18,197	...
1869 ...	179,900	14,278	4,124	32,998	...	...	1915 ...	9,968,500c	808,392	3,375	78,926	6,127	381
1870 ...	157,200	17,591	6,112	48,890	...	...	1916 ...	5,432,100	441,991	6,271	61,381	10,208	1,102
1871 ...	218,500	15,304	3,866	26,926	...	...	1917 ...	3,890,650	310,893	7,230	72,669	18,959	2,060
1872 ...	37,000	2,590	3,942	31,536	...	...	1918 ...	3,436,250	274,141	6,504	81,834	16,886	3,995
1873 ...	68,150	4,771	6,292	62,916	...	...	1919 ...	4,135,750	344,119	3,998	117,072	18,375	3,937
1874 ...	345,600	24,192	7,057	70,572	...	...	1920 ...	5,065,300	487,666	14,355	240,579	22,121	3,704
1875 ...	342,350	23,965	6,646	66,465	...	...	1921 ...	9,816,250	1,162,735	10,839	181,301	23,073	10,107
1876 ...	219,050	23,743	6,577	65,772	...	...	1922 ...	8,309,750	1,063,475	3,990	54,769	13,328	6,878
1877 ...	336,150	36,979	4,247	31,851	...	...	1923 ...	7,911,310	1,009,831	7,705	103,958	21,161	20,075
1878 ...	530,900	63,902	4,675	35,064	...	...	1924 ...	11,126,861	1,379,022	14,081	348,713	29,607	39,877
1879 ...	627,250	69,742	4,667	35,001	...	...	1925 ...	11,844,308	1,491,925	6,243	186,775	40,136	42,057
1880 ...	662,550	66,262	5,197	51,970	...	...	1926 ...	12,001,384	1,533,030	7,771	238,203	15,056	47,819
1881 ...	792,750	79,277	7,716	77,165	...	...	1927 ...	12,580,262	1,659,876	6,821	199,746	15,818	26,307
Totals	273,694,970	25,499,236	393,175	4,381,579	1,110,108	208,354							

a The exports up to the year 1834 consisted only of supplies to shipping of which no record is kept. b Not available. c Approximate figures only.  
d Six months ended 30th June. e Year ended 30th June. \* Principally Sandalwood Oil.

## APPENDIX 2j.

Summary of Imports of Timber, Tanning Materials and Essential Oils, since 1848.

Year.	Timber, Wood-ware, etc. (not including furniture, bamboo, cane, etc.)	Tanning Materials.	Essential Oils.
		Value £	Value £
1848	464	...	...
1849	...	...	...
1850	189	...	...
1851	3,216	...	...
1852	2,479	...	...
1853	790	...	...
1854	831	...	...
1855	1,464	...	...
1856	1,124	...	...
1857	774	...	...
1858	1,528	...	...
1859	690	...	...
1860	2,095	...	...
1861	1,459	...	...
1862	1,920	...	...
1863	1,568	...	...
1864	894	...	...
1865	548	...	...
1866	1,442	...	...
1867	1,727	...	...
1868	1,451	...	...
1869	1,408	...	...
1870	1,518	...	...
1871	736	...	...
1872	1,660	...	...
1873	1,008	...	...
1874	1,774	...	...
1875	2,707	...	...
1876	3,098	...	...
1877	2,036	...	...
1878	2,947	...	...
1879	2,340	...	...
1880	3,061	...	...
1881	3,639	...	...
1882	3,692	...	...
1883	6,667	...	...
1884	2,930	...	...
1885	11,479	...	...
1886	17,888	...	...
1887	8,136	...	...
1888	4,461	...	...
1889	7,686	...	...
1890	14,979	...	...
1891	18,406	...	...
1892	26,713	...	...
1893	14,493	...	...
1894	17,964	...	...
1895	47,128	...	...
1896	5,381	...	...
1897	164,552	...	...
1898	55,566	...	...
1899	45,689	...	...
1900	56,266	1,416	1,105
1901	80,134	1,740	1,546
1902	97,810	3,418	1,751
1903	102,383	3,556	1,348
1904	157,856	1,322	2,122
1905	98,494	582	1,592
1906	95,229	1,412	1,915
1907	122,016	2,767	1,549
1908	93,205	2,392	4,584
1909	90,502	4,129	4,003
1910	171,280	3,531	3,686
1911	152,133	2,912	4,938
1912	167,244	3,089	4,598
1913	202,640	2,651	5,392
1914	78,736	629	2,823
1914-15	107,763	2,082	4,988
1915-16	76,849	3,313	4,788
1916-17	75,681	2,848	3,484
1917-18	58,305	2,020	4,358
1918-19	62,824	1,181	4,168
1919-20	100,083	3,748	10,043
1920-21	171,654	*4,899	6,106
1921-22	92,448	5,865	6,577
1922-23	109,423	6,991	4,033
1923-24	133,893	2,790	3,301
1924-25	161,898	2,670	4,429
1925-26	144,989	5,826	4,449
1926-27	162,193	8,971	4,254
Totals	3,752,331	88,750	107,930

\*This and subsequent years include Tanning Extracts, not previously recorded.

## APPENDIX 3a.

Timber Concessions in Force as at the 30th June, 1927.

Concessionaire.	No.	Locality.	Term.	Present Area.
Millars' T. & T. Co., Ltd.	12/0	Cockburn Sound	1-1-1889 to 31-12-1929	acres. 244,600

## APPENDIX 3b.

Timber Leases in Force as at the 30th June, 1927.

Lessee.	No.	District.	†Original Term, under Land Act, 1898.	Expiration of extension under Forests Act, 1918.*	Present Area.
Millars' T. & T. Co., Ltd.	186/113	Yarloop	1- 1-1899 to 31-12-1923	31-12-1927	acres. 16,012
Millars' T. & T. Co., Ltd.	227/113	Yarloop	1- 1-1901 to 31-12-1925	31-12-1929	2,743
Millars' T. & T. Co., Ltd.	228/113	Yarloop	1- 1-1901 to 31-12-1925	31-12-1929	4,130
Millars' T. & T. Co., Ltd.	229/113	Yarloop	1- 1-1901 to 31-12-1925	31-12-1929	3,962
Millars' T. & T. Co., Ltd.	230/113	Yarloop	1- 1-1901 to 31-12-1925	31-12-1929	4,480
Good, Frederick Daniel	244/113	Dwellingup	1- 7-1899 to 30-6-1924	15-7-1929	13,259
Good, Frederick Daniel	257/113	Donnybrook	1-10-1899 to 30-9-1924	31-8-1929	28,876
Millars' T. & T. Co., Ltd.	261/113	Yarloop	1-10-1899 to 30-9-1924	15-10-1929	25,316
Wittenoom, Edward Horne	269/113	Yarloop	1-10-1899 to 30-9-1924	30-9-1928	2,080
Ainslie, James	291/113	Donnybrook	1- 1-1901 to 31-12-1925	30-11-1930	17,308
Millars' T. & T. Co., Ltd.	296/113	Yarloop	1- 1-1900 to 31-12-1924	31-12-1928	3,868
Millars' T. & T. Co., Ltd.	297/113	Yarloop	1- 1-1900 to 31-12-1924	31-12-1928	13,219
Ainslie, James	299/113	Dwellingup	1- 7-1900 to 30-6-1925	15-7-1930	25,580
Wittenoom, Edward Horne	322/113	Yarloop	1- 4-1902 to 31-3-1927	15-4-1932	22,024
Wittenoom, Edward Horne	325/113	Yarloop	1- 4-1902 to 31-3-1927	31-3-1931	1,197
Smith, Henry Teesdale	330/113	Dwellingup	1- 7-1902 to 30-6-1927	30-11-1930	2,115
Smith, Henry Teesdale	331/113	Dwellingup	1- 1-1903 to 31-12-1927	15-1-1933	3,953
			Total	...	190,122

\* On royalty basis. † On rental basis.

## APPENDIX 3c.

Saw Mill Permits in Force as at the 30th June, 1927 (Granted under Section II. of the Land Act Amendment Act, 1904).

Permit Holder.	No.	Locality.	Term.	Present Area.
				acres.
Port & Co., Ltd.	34/11	Pindalup	1- 7-1910 to 30-6-1931	30,702
Wilgarrup Karri and Jarrah Co., Ltd.	42/11	Jarnadup	1- 4-1910 to 31-3-1931	14,948
Buckingham Bros.	44/11	Muja	1- 7-1910 to 30-6-1928	17,730
Commissioner of Railways	60/11	Yourdanning	1- 4-1912 to 31-3-1928	37,710
The Kauri Timber Co., Ltd.	61/11	Nannup	1- 1-1912 to 31-12-1927	72,146
Trees, Ltd.	71/11	Collie	1- 4-1914 to 31-12-1928	20,028
McGibbon, Sinclair James (Whittaker Bros.)	76/11	North Dandalup	1- 7-1915 to 30-6-1928	20,000
Commissioner of Railways	78/11	Dwellingup	1- 7-1915 to 30-6-1927	80,059
Minister for Works and Industries	79/11	Wuraming	1-10-1915 to 30-9-1927	35,261
Minister for Works and Industries	80/11	Bingham River	1-10-1915 to 30-9-1927	21,260
Minister for Works and Industries	81/11	Wuraming Hill	1-10-1915 to 30-9-1927	21,386
Minister for Works and Industries	82/11	Worsley	1-10-1915 to 30-9-1927	9,390
Buckingham Bros.	83/11	Bingham River	1- 7-1916 to 30-6-1928	20,130
McGibbon, Sinclair James (Whittaker Bros.)	84/11	North Dandalup	1- 1-1916 to 31-12-1927	15,430
Minister for Works and Industries	85/11	Pemberton	1- 7-1916 to 30-6-1927	80,883
Minister for Works and Industries	86/11	Manjimup	1- 7-1916 to 30-6-1927	154,234
Westralian Powell Wood Process, Ltd.	87/11	Donnelly River	1- 1-1919 to 31-12-1929	15,000
Wandoo Timber Co., Ltd.	89/11	Muja	1-10-1916 to 31-5-1928	38,335
Bunning Bros., Ltd.	94/11	Collie	1-10-1916 to 30-6-1928	10,123
Preston Valley Sawmills, Ltd.	95/11	Noggerup	1- 1-1917 to 31-12-1927	9,744
Bunning Bros., Ltd.	97/11	Collie	1- 4-1917 to 30-6-1928	10,000
Bunning Bros., Ltd.	99/11	Collie	1- 7-1918 to 30-6-1928	9,960
			Total	744,459

## APPENDIX 3d.

Sawmilling Permits in Force as at the 30th June, 1927 (Granted under Forests Act, 1918).

Permit Holder.	No.	Locality.	Term.		Area.
			From.	To.	
Adelaide Timber Co., Ltd. ... ..	57	Wilga ... ..	28-11-18	30-9-27	acres.
Swan Saw Mills, Ltd. ... ..	91	Quilergup ... ..	22-8-19	21-8-29	19,186
Buckingham Bros. ... ..	106	Muja ... ..	25-11-19	31-12-27	19,340
Collie Land & Timber Co., Ltd. ... ..	107	Bingham River ... ..	29-11-19	30-6-28	5,039
Nicholson, John ... ..	145	Barabup ... ..	1-9-21	31-8-27	8,143
Steele, H. ... ..	198	Albany ... ..	1-3-21	30-4-28	11,120
Timber Corporation, Ltd. ....	216	Greenbushes ... ..	1-4-21	31-3-31	2,050
Miller, E. E. ... ..	243	Donnybrook ... ..	1-12-21	30-11-27	7,240
State Saw Mills ... ..	310	Bridgetown ... ..	14-7-22	30-6-27	50
Margaret River Timber Co., Ltd. ... ..	328	Margaret River ... ..	1-11-22	31-10-27	10,300
Waters, A. ... ..	363	Sawyers' Valley ... ..	1-7-23	31-8-27	20,620
Adelaide Timber Co., Ltd. ... ..	380	Benjinup... ..	1-8-23	31-7-27	380
State Saw Mills ... ..	387	Pindalup ... ..	1-10-23	30-9-27	3,800
Australian Lumber Co., Ltd. ... ..	390	Palgarup ... ..	1-11-23	31-10-27	16,038
W. A. Jarrah Forests, Ltd. ... ..	403	Margaret River ... ..	22-10-23	21-10-27	8,763
Trees, Ltd. ... ..	422	Collie ... ..	7-12-23	31-12-27	11,931
Harper, A. J. ... ..	427	Marbellup ... ..	1-2-24	30-4-28	3,750
Bunning Bros., Ltd. ... ..	451	Claymore ... ..	1-6-24	31-5-28	2,540
Connell, R. C. ... ..	454	Collie ... ..	1-7-24	30-6-27	5,720
Collie Land and Timber Co., Ltd. ... ..	456	Collie ... ..	1-7-24	30-6-28	5,884
The Mumballup Timber Syndicate ... ..	492	Mumballup ... ..	1-9-24	31-8-27	1,135
Carrigg, John ... ..	496	Northcliffe ... ..	1-9-24	31-8-27	6,568
Busseton Saw Mills, Ltd. ... ..	508	Quindalup ... ..	1-10-24	30-9-27	828
Bunning Bros., Ltd. ... ..	517	Noggerup ... ..	17-10-24	31-10-27	6,956
Millar's Timber & Trading Co., Ltd. ... ..	524	Jarrahwood ... ..	1-1-25	31-12-27	5,180
Timber Corporation, Ltd. ....	552	Wilgarrup ... ..	1-4-25	31-3-28	19,256
Jackson & Rodgers, Ltd. ... ..	555	Boyanup ... ..	1-5-25	30-4-28	6,260
Millar's Timber & Trading Co., Ltd. ... ..	571	Marrinup ... ..	1-6-25	31-5-28	5,000
Harnett, P. ... ..	581	Worsley ... ..	1-7-25	30-6-27	7,350
Weston, Smailes and Liebow ... ..	615	Pickering Brook ... ..	1-1-26	31-12-27	2,930
Bentley, J. L. ... ..	616	Capel ... ..	1-1-26	31-12-27	4,120
Millar's Timber & Trading Co., Ltd. ... ..	617	Barton's Mill ... ..	16-12-25	31-12-27	2,738
McClure, W. ... ..	618	Walliston ... ..	1-1-26	31-12-27	4,600
Scott W. J. R. ... ..	625	Capel ... ..	1-3-26	29-2-28	205
Thompson, G. P. ... ..	630	Argyle ... ..	1-3-26	29-2-28	2,000
Moss, F. A. ... ..	637	Harvey ... ..	10-7-26	9-7-27	1,830
Millar's Timber & Trading Co., Ltd. ... ..	650	Lowden ... ..	14-8-26	13-8-27	3,920
Australian Lumber Co., Ltd. ... ..	653	Bowelling ... ..	1-10-26	30-9-27	2,125
Lewis, J., and Stirk, F. ... ..	658	Mullalyup ... ..	1-11-26	30-10-27	36,390
Curtis & Co. ... ..	664	Bedfordale ... ..	18-12-26	31-12-27	4,366
Patterson, H. ... ..	668	Waroona ... ..	1-3-27	31-8-27	2,600
Bonola, T. D. ... ..	676	Witchcliffe ... ..	20-4-27	30-4-28	657
Bunning Bros., Ltd. ... ..	677	Yornup ... ..	1-4-27	31-3-28	1,344
					7,950
			Total ...		298,202

## APPENDIX 3e.

Hewing Permits in Force as at 30th June, 1927.

Permit Holder.	No.	Locality.	Term.		Area.
			From.	To.	
Aubin, L. ... ..	326	Margaret River ...	1-11-22	31-10-27	acres. 605
Jackson & Rodgers, Ltd....	392	Margaret River ...	22-10-23	21-10-27	8,970
Bailey, W. J. ... ..	396	Margaret River ...	22-10-23	21-4-28	2,400
Bailey, W. J. ... ..	397	Margaret River ...	22-10-23	21-4-28	3,865
Bailey, W. J. ... ..	398	Margaret River ...	22-10-23	21-4-28	4,680
W.A. Jarrah Forests, Ltd.	399	Margaret River ...	22-10-23	21-10-27	8,125
W.A. Jarrah Forests, Ltd.	400	Margaret River ...	22-10-23	21-10-27	4,680
W.A. Jarrah Forests, Ltd.	401	Margaret River ...	22-10-23	21-10-27	4,770
Bailey, W. J. ... ..	402	Margaret River ...	22-10-23	21-4-28	2,590
Jackson & Rodgers, Ltd....	404	Margaret River ...	22-10-23	21-10-27	14,380
Jackson & Rodgers, Ltd....	411	Margaret River ...	1-12-23	30-11-27	17,000
Jackson & Rodgers, Ltd....	412	Margaret River ...	1-12-23	30-11-27	3,100
Jackson & Rodgers, Ltd....	413	Margaret River ...	1-12-23	31-8-27	8,300
Ryan, Joseph ... ..	488	Margaret River ...	11-8-24	10-8-27	14,750
Ryan, P. D. ... ..	489	Margaret River ...	11-8-24	10-8-27	12,280
Jackson & Rodgers, Ltd.	490	Busselton ... ..	11-8-24	10-8-27	5,984
W.A. Jarrah Forests, Ltd.	530	Margaret River ...	16-1-25	31-1-28	6,952
Connell, W. R. ... ..	548	Bridgetown ... ..	1-4-25	31-3-28	1,973
Bailey & Davies ... ..	549	Bridgetown ... ..	1-4-25	31-3-28	1,136
Bailey & Davies ... ..	550	Bridgetown ... ..	1-4-25	31-3-28	573
Bonola, T. D. ... ..	572	Margaret River ...	1-7-25	30-6-27	3,270
Chamberlain, E. B. I. & B. E.	578	Wilga ... ..	1-7-25	30-6-27	240
Wilson & Galvin ... ..	593	Margaret River ...	21-9-25	20-9-27	4,405
Davies, J. ... ..	610	Hester ... ..	1-11-25	31-10-27	2,077
Payne, P. C. ... ..	641	Margaret River ...	17-7-26	31-7-27	350
Payne, P. G. ... ..	649	Margaret River ...	14-8-26	31-8-27	1,030
Ryan, P. D. ... ..	656	Busselton ... ..	1-10-26	30-9-27	3,620
Ryan, P. D. ... ..	657	Busselton ... ..	1-10-26	30-9-27	8,830
Bunning Bros., Ltd.	659	Manjimup ... ..	1-11-26	31-10-27	190
Munt, C. A. ... ..	660	Albany ... ..	15-11-26	14-11-27	66,000
Galvin, J. ... ..	661	Albany ... ..	6-12-26	30-6-27	11,600
Eastcott, T. ... ..	662	Albany ... ..	6-12-26	30-6-27	12,400
Spilsbury, L. T. ... ..	665	Nannup ... ..	8-1-27	7-7-27	350
Viles, F. ... ..	667	Hester ... ..	15-1-27	14-1-28	1,975
Martin, H. ... ..	670	Albany ... ..	1-3-27	31-8-27	4,940
Bonola, T. D. ... ..	672	Margaret River ...	12-2-27	11-2-28	1,337
Bock, L. J. ... ..	679	Muja ... ..	15-6-27	30-6-29	67,154
				Total ...	316,881

## APPENDIX 3f.

Firewood Permits in Force as at 30th June, 1927.

Permit Holder.	No.	Locality.	Term.		Area.
			From.	To.	
Hunter, C. H. ... ..	205	Clackline ... ..	1-5-21	30-4-28	acres. 600
Georgeff, M....	244	Balcatta ... ..	1-12-21	30-11-27	1,180
Dean, G. ... ..	264	Nannup ... ..	1-4-22	31-3-28	945
Gordin, A. A. ... ..	385	Byford ... ..	1-9-23	31-8-27	1,347
Gableish, A....	389	Albany ... ..	1-11-23	30-4-28	1,100
Shanhun, A. V. ... ..	434	Albany ... ..	1-3-24	30-9-27	495
Harvey, A. R. ... ..	458	Albany ... ..	1-7-24	30-4-28	940
Fisher, G. W. ... ..	557	Albany ... ..	1-5-25	30-4-28	385
Johnston, George ... ..	562	North Beach ... ..	1-6-25	31-5-28	180
Sexton, Robt. ... ..	573	Bedforddale ... ..	1-7-25	30-6-28	160
Martin, G. H. ... ..	596	Kelmscott ... ..	1-9-25	31-8-27	912
Mollison, G. J. ... ..	600	Wanneroo ... ..	1-10-25	30-9-27	230
Kirwan, W. A. ... ..	601	Jarrahdale ... ..	1-9-25	31-8-27	494
Ferguson, J. H. ... ..	623	Wooroloo ... ..	1-3-26	30-6-27	3,500
Kirwan, W. A. ... ..	632	Jarrahdale ... ..	1-5-26	30-4-28	1,069
Viles, F. ... ..	636	Byford ... ..	1-7-26	30-6-28	1,450
Trew, S. G. ... ..	644	Mundaring ... ..	1-8-26	...	12,600
Considine, J. R. ... ..	645	Mundaring ... ..	1-8-26	...	6,400
Bevan, A. H. ... ..	646	Marbellup ... ..	1-8-26	31-7-27	950
Page, J. E. ... ..	647	Albany ... ..	1-8-26	31-7-27	700
Harrison, W. R. ... ..	654	Bullsbrook ... ..	1-10-26	30-9-27	450
Oborn, W. J. ... ..	669	Jarrahdale ... ..	12-2-27	11-2-28	420
Mason, S. ... ..	674	Bedforddale ... ..	21-3-27	31-3-28	1,700
Shanhun, A. H. ... ..	675	Albany ... ..	1-4-27	31-3-28	750
Dunn, T., and Bothwell, B.	680	Armadales ... ..	16-5-27	31-5-28	1,590
				Total ...	40,538

## APPENDIX 3g.

Miscellaneous Permits in Force as at 30th June, 1927.

Permit Holder.	No.	Locality.	Term.		Forest Produce.
			From.	To.	
Hall, W. R....	104	Kalgoorlie ...	1-10-19	31-7-29	Tanning Barks
Mollison, George ...	553	Wanneru ...	1-5-25	30-4-27	Blackboy
Blackboy Tanning and By-Products, Ltd.	568	Collie ...	1-7-25	30-6-28	do.
Brockman, E. V. ...	673	Nannup ...	1-3-27	31-8-27	River Banksia

## APPENDIX 3h.

Summary of Appendices 3a to 3g.

Number in Force.	Class of Holding.	Area.
1	Timber Concessions (Appendix 3a) ...	acres. 244,600
17	Timber Leases (Appendix 3b) ...	190,122
22	Sawmill Permits (Appendix 3c) ...	744,459
43	Sawmilling Permits (Appendix 3d) ...	298,202
37	Hewing Permits (Appendix 3e) ...	316,881
25	Firewood Permits (Appendix 3f) ...	40,538
4	Miscellaneous Permits (Appendix 3g) ...	...
149	Total ...	1,834,802

## APPENDIX 4.

Table showing the number of various Timber Workers' Registration Certificates issued from 1st July, 1926, to 30th June, 1927, as compared with those issued during the year ended 30th June, 1926.

Class of Registrations.	Number issued for year ended 30th June, 1926.	Number issued for year ended 30th June, 1927.
Hewers ...	394	340
Fallers ...	924	904
Haulers, Teamsters, etc. ...	242	202
Carters ...	69	82
Managers and Bush Foremen ...	86	58
Swampers ...	263	186
Firewood Cutters and Carters ...	244	218
Charcoal-burners and Carters ...	7	2
Timber Getters * ...	19	16
Barrel Stave and Billet Splitters ...	3	...
Ropemen ...	2	1
Whistle Boys ...	5	3
Shoemen ...	1	1
Beam Squarers ...	2	1
Engine Drivers ...	2	1
Hookmen ...	6	3
Mill Hands ...	1	...
Chaser ...	...	1
Winchmen ...	7	6
Lorry Drivers ...	1	2
Signalmen ...	1	...
Permit Holders ...	4	6
Sandalwood Getters ...	795	629
Fencepost Splitters ...	...	22
	3,078	2,684

\*Working on Coal Mining Leases.

## APPENDIX 5.

Table showing the number of Licenses issued from 1st July, 1926, to 30th June, 1927, as compared with those issued during the year ended 30th June, 1926.

License.	Number issued for year ended 30th June, 1926.	Number issued for year ended 30th June, 1927.
Firewood ... ..	1,946	1,958
Mining Timber ... ..	55	58
Timber and Fence Post (License Fee) ... ..	7	...
Fence Post (Royalty basis) ... ..	23	22
Sandalwood ... ..	75	42
Other ... ..	5	26
Totals ... ..	2,111	2,106

## APPENDIX 6.

Summary of Prosecutions for Year ended 30th June, 1927.

Charge.	Number of Prosecutions.	Number of Convictions.
Unlawful removal of Timber... ..	31	26
Failing to register as a Timber Worker and failing to register a Brand ... ..	8	8
Other offences under Forests Act, 1918 ... ..	3	3
Totals ... ..	42	37



APPENDIX 7.

LIST OF SAWMILLS.

Name of Sawmill Owner and District.	Date of Erection of Mill.	Saw Mill Site, Lease or P.P. Location No.	Horse-power of Mill.	Length of Tramway connecting Mill with Main Line Siding.	Output in loads of Squared Timber per day.	Remarks.
ALBANY DISTRICT.						
Colmer, R. J., Matilda ...	Dec., 1926	P.P. Loc. 1277 ...	16	M. C.	2	Cutting Wandoo from P.P. for truck timber and sleepers for W.A. Government Railway Department. Works intermittently.
Douglas, J. R., Denmark ...	1912	P.P. Town Lot 302	14	...	1	Cutting Karri, Banksia, Yellow Tingle from P.P. for general wheelyright work. Works intermittently.
Drage, J. E., Effiedale ...	Nov., 1913	P.P. Loc. 79 ...	10	...	1 1/2	Cutting Jarrah from P.P. for fruit cases. Works intermittently.
Edgley, A., Redmond ...	April, 1921	P.P. Loc. 2698 ...	12	...	1 1/2	Cutting Jarrah scantling and fruit cases. Works intermittently.
Fitch, F. W., Millbrook ...	April, 1925	P.P. Loc. 1379	25	...	...	Cutting Sheoak from P.P. for fruit cases. * Closed down June, 1925.
Harper, A. J., Marbellup ...	May, 1923	S.M. Site 37/33	12	...	1	Cutting Jarrah and Sheoak from Permit 427 for barrel staves, furniture, fruit cases and firewood. Works intermittently.
Haynes, A. G., Nomalup Glen ...	Jan., 1927	P.P. Loc. 464 ...	5-7	...	1	Cutting Karri from P.P. for scantling.
Keith, A. E., Hay River ...	1910	P.P. Loc. 2685	5	...	1	Cutting Jarrah from P.P. for fruit cases. Closed down 1922.
Livesey, S. C., Napier River ...	Sept., 1923	P.P. Loc. 1999 ...	12	...	1 1/2	Cutting Jarrah from P.P. for fruit cases for own use. Works intermittently.
Parsons & Sons, Nunigup ...	May, 1926	P.P. Loc. 1156	18	...	1	Cutting Wandoo and Jarrah from P.P. for sleepers. Works intermittently.
Robins, J. G. ...	Nov., 1926	P.P. Loc. 4478 ...	12	...	1 1/2	Cutting Karri from P.P. for fruit cases.
Steele, H., Albany ...	May, 1921	P.P. Town Lot 43	6	...	1	Cutting Sheoak from Permit 198 for fruit cases, staves, and firewood. Works intermittently.
Steicke Bros., Porongorups ...	June, 1913	P.P. Loc. 1855	18	...	1	Cutting Karri and Jarrah from P.P. and Permit 666 for fruit cases and scantling. Works intermittently.
BRIDGE TOWN DISTRICT.						
Bunning Bros., Ltd., Yornup ...	July, 1927	S.M. Site 69/33	28	...	8	Cutting Jarrah from Permit 677.
Flint, S. F., Scott's Brook ...	Jan., 1925	P.P. Loc. 5263	6-10	...	...	Cutting Jarrah from P.P. for small orders and fruit cases. Closed down.
Holdsworth, C. J. H., Hester ...	Mar., 1921	P.P. Loc. 11	10	...	10	Cutting Jarrah and Karri for fruit cases from waste ends from various mills.
Lewis & Stirk, Mullalynp ...	Jan., 1927	S.M. Site 66/33	16	...	5	Cutting Jarrah from Permit 658.
Machin, H. J., Glentullock ...	1922	P.P. Loc. 767 ...	20	...	1 1/2	Cutting Jarrah from P.P. for fruit cases for own use.
Mitchell & Ryan, Hester ...	Aug., 1919	P.P. Loc. 5290	13	3 0	1	Cutting Jarrah from Permit 406 for fruit cases, scantling, and sleepers. Closed down November, 1926.
Morrison, A., Tamar Gully ...	June, 1923	P.P. Loc. 9693 ...	6	...	1 1/2	Cutting Jarrah from P.P.
BUSSETON DISTRICT.						
Bentley, J. L., Capel ...	1926	P.P. Loc. 26	8	...	3 1/2	Cutting Jarrah from Permit 616 and P.P.
Busseton Saw Mills, Ltd. ...	May, 1927	S.M. Site 65/33	22	...	5	Cutting Jarrah from Permit 508.
Donald, R. & Sons, Yallingup ...	1923	Private property	10-12	...	1	Cutting Jarrah from P.P. for own use.
Forests Department, Wonnerup ...	June 30, 1921	State Forest, No. 2	40	0 20	25	Cutting Tuart. Bulk of output for W.A.G.R.. Closed down December, 1925.
Margaret River Timber Co., Ltd. ...	1927	S.M. Site 63/33	20	...	10	Cutting Jarrah from Permit 328.
Scott, W. J. R., Capel ...	July, 1926	S.M. Site 61/33	10	...	3	Cutting Jarrah from Permit 625 for fruit cases and building timber.
COLLIE DISTRICT.						
Bunning Bros., Ltd., Lyall's Mill ...	1918	P.P. Loc. 2519	90	5 0	30	Cutting Jarrah from Permits 94/11, 95/11, 97/11, 99/11 and 517.
Collie Land & Timber Co., No. 2, Shotts ...	Jan., 1925	P.P. Loc. 755 ...	40	...	15	Cutting Jarrah from private property.

APPENDIX 7.—LIST OF SAWMILLS—continued.

Name of Sawmill Owner and District.	Date of Erection of MILL.	Saw Mill Site, Timber Lease or P.P. Location No.	Horse-power of Mill.	Length of Tramway connecting Mill with Main Line Siding.	Output in loads of Squared Timber per day.	Remarks.
<b>MUVA SUB-DISTRICT.</b>						
Australian Lumber Co., Ltd., Bowelling...	1920	Sawmill Site 16/33	35	M. C.	20	Cutting Jarrah from Permit 653. Closed down.
Buckingham Bros., Buckingham's Siding...	1911	S.M. Site 30/33	40	0 40	18	Cutting Jarrah from Permits 44/11, 83/11, and 106.
Bunning Bros., Ltd., Minja	Jan., 1914	P.P. Loc. 1676	32	0 65	15	Cutting Jarrah and Wandoo from Permit 89/11.
Collie Land & Timber Co., No. 1, Shotts	May, 1921	S.M. Site 8/33	14	5 0	10	Cutting Jarrah from Permits 107 and 456. Closed down Sept., 1925.
<b>WORSLEY SUB-DISTRICT.</b>						
Connell, R. C., No. 2, Collie	July, 1927	P.P. Loc. 56	18	...	10	Cutting Jarrah from private property.
Harnett, P. J., Worsley	1925	S.M. Site 58/33	12	...	3	Cutting Jarrah from Permit 581.
State Saw Mills, No. 6, Potter's Gorge	1925	S.M. Site 57/33	30	...	12	Cutting Jarrah from Permit 82/11.
State Saw Mills, No. 6, "C," Worsley	1926	S.M. Site 64/33	36	...	10	Cutting Jarrah from Permit 82/11.
Westralian Timber & Trading Co. Ltd., Maroondah	1924	P.P. Well. Loc. 1	39	...	20	Cutting Jarrah from private property.
<b>DONNYBROOK DISTRICT.</b>						
Bendall, W.A., Donnybrook	1913	P.P. Loc. 988 and 989	10	...	1 1/2	Cutting Jarrah from P.P. for sleepers and fruit cases.
Bowman, J. H., Orange Grove	1921	P.P. Loc. 109	12	...	1 1/2	Cutting Jarrah from P.P. for fruit cases for own use.
Bunning Bros., Ltd., Argyle	1904	P.P. Loc. 2354	80	0 10	20	Cutting Jarrah from Permit 451.
Jackson & Rodgers, Ltd., Boyanup	June-Aug., 1925	S.M. Site 50/33	20	...	7	Cutting Jarrah from Permit 555 and P.P. Closed down July, 1927.
Martin, R. M., Inglewood Park	1917	P.P. Loc. 3249	8	...	1 1/2	Cutting Jarrah from P.P. for fruit cases for own use.
Millars' Timber & Trading Co., Ltd., East Kirup	1910	S.M. Site 53/33	60	12 0	36	Cutting Jarrah from Timber Lease 257/113.
Millars' Timber & Trading Co., Ltd., Wellington Mills, No. 6	Jan. and Feb., 1926	Private property	32	13 0	12	Cutting Jarrah from Permits 619 and 650.
Miller, Thos., Charley Creek	1927	P.P. Loc. 62	25	...	1 1/2	Cutting Jarrah from P.P. for fruit cases and scantling.
Miller, E. E., Beelump	1923	P.P. Loc. 168	6	...	1 1/2	Cutting Jarrah from Permit 243 for fruit cases and timber for own use.
Slattery, B., Ferguson	1920	P.P. Loc. 2468	4	...	1 1/2	Cutting Jarrah from P.P. for fruit cases.
Thompson, G. P., Boyanup	May, 1926	S.M. Site 60/33	8	...	2	Cutting Jarrah from Permit 630.
<b>DWELLINGUP DISTRICT.</b>						
Edgeworth & Co., Pinjarra	1920	P.P. Lot 14	10	...	1 1/2	Cutting fruit cases from waste Jarrah from other mills.
Millars' Timber & Trading Co., Ltd., Murrinup	1910-1911	S.M. Site 55/33	35	On main line	18	Cutting Jarrah from Permit 571.
Millars' Timber & Trading Co., Ltd., Nanga Brook	1909	Timber Lease 261/113...	80	28 0	53	Cutting Jarrah from Timber Leases 244/113, 261/113 and 299/113.
Port & Co., Ltd., Duncan's No. 8, Holyoake	April, 1925	S.M. Site 47/33	35	15 0	24	Cutting Jarrah from Permit 34/11 (Part 1).
Railway Department, No. 2, Dwellingup	1912	P.P. Loc. 1037	200	5 0	50	Cutting Jarrah from Permit 78/11.
Rosenthal, C. H. A., Meelon	1922	Railway Property	12	...	1	Cutting fruit cases from waste jarrah from other mills.
State Saw Mills, No. 5, Holyoake	1911	S.M. Site 12/33	66	0 20	30	Cutting Jarrah from Permit 81/11 and private property.
Whittaker Bros. (S. J. McGibbon, Receiver and Manager), North Dandalup	1901	S.M. Site 56/33	120	4 0	30	Cutting Jarrah from Permits 76/11 and 84/11.

Company/Property	Date	Locality	Area	On main line	Notes
<b>JARRAHWOOD DISTRICT.</b>					
Millars' Timber & Trading Co., Ltd., Jarrahwood	...	P.P. Loc. 361	40	23	Cutting Jarrah from Permit 524.
Nicholson, J. (Sussex Timber Co., Ltd.), Dellerton	1923	P.P. Loc. 3898	32	15	Cutting Jarrah from Permit 145.
Swan Sawmills, Ltd., Claymore	1921	S.M. Site 4/33	40	20	Cutting Jarrah from Permit 91.
<b>MANUMUP DISTRICT.</b>					
Australian Lumber Co., Ltd., Alco	Aug., 1924	S.M. Site 35/33	45	15	Cutting Jarrah from Permit 390 and private property.
Carrigg, J., Northcliffe	Dec., 1924	S.M. Site 43/33	24	8	Cutting Jarrah from Permit 496 and Group Settlement Blocks.
Edwards, R. H., Balbarup	Sept., 1920	P.P. Loc. 2200	8	1/2	Cutting Jarrah from P.P. for fruit cases and own use.
Hornby, H. J., Balbarup	1926	P.P. Loc. 276	6	...	Cutting Jarrah from P.P. for fruit cases and own use.
Johnson, J., Balbarup	1906	P.P. Loc. 1098	12	...	Cutting Jarrah from P.P. for fruit cases and own use.
Ralph, W., Balbarup	Oct., 1910	P.P. Loc. 2383	7 1/2	1/2	Cutting Jarrah from P.P. for fruit cases and own use.
State Saw Mills, No. 1, Manjimup	1927	Reserve 1655	80	30	Cutting Jarrah and Karri from Permits 73/11, 86/11 and 310.
State Saw Mills No. 1, Manjimup (Harrald's)	June 10, 1926	...	16	8	Cutting Jarrah from 86/11.
State Saw Mills No. 2, Pemberton	1914	Reserve 16354	400	50	Cutting Karri from Permit 85/11.
State Saw Mills No. 3, Pemberton	1914	Reserve 16354	280	28	Cutting Karri from Permit 85/11.
Timber Corporation, Ltd., Palgarup	June, 1920	P.P. Loc. 504	41	24	Cutting Jarrah from Permit 562.
Wilgarup Karri & Jarrah Co., Ltd., Jardee	1912	S.M. Site 7/33	75	35	Cutting Jarrah and Karri from Permit 42/11 and private property.
<b>MARGARET RIVER DISTRICT.</b>					
Bonola, T. D.	...	...	10	5	Cutting Jarrah from Permit 676.
W.A. Jarrah Forests, Ltd., Pilgrim's Mill	1924	S.M. Site 48/33	312	30	Cutting Jarrah from Permit 403.
<b>METROPOLITAN DISTRICT.</b>					
Buckingham, W. S., Kelmescott	June, 1921	P.P. Loc. 33	15	1 1/2	Cutting Jarrah and Red Gum from private property.
Curtis & Co., Bedfordale	July, 1927	P.P. Loc. 488	14	2 1/2	Cutting Jarrah from Permit 664.
Dennis, H. J., Wanneroo	June, 1922	P.P. Loc. 2737	11	3	Cutting Jarrah and Banksia from P.P. for fruit cases.
Howard, J., Kelmescott	Jan., 1927	Kelmescott Town Site	12 1/2	1/2	Cutting Jarrah from private property for fruit cases and pickets.
Millars' Timber & Trading Co., Ltd., No. 1, Jarrahdale	1913	P.P. Coekburn Sound Loc. 282	110	50	Cutting Jarrah from Concession 12/0.
Millars' Timber & Trading Co., Ltd., No. 2, Jarrahdale	Mar., 1922	P.P. Coekburn Sound Loc. 282	55	27	Cutting Jarrah from Concession 12/0.
Millars' Timber & Trading Co., Ltd. (Board Mill), Mundijong	July, 1918	P.P. Coekburn Sound Loc. 524	20	16	Cuts boards only from fitches supplied by other mills on Concession 12/0.
Turner, W. H.	Feb., 1927	Private Property	10	1	Cutting Jarrah from private property.
Railway Department, Midland Junction	1904	Midland Junction Work-shops	80	10	Cuts Tuart, Wandoo and Banksia for own use.
<b>MUNDARING DISTRICT.</b>					
Millars' Timber & Trading Co., Ltd., New Gauning	Aug., 1924	S.M. Site 59/33	30	12 1/2	Cutting Jarrah from Permit 617.
Waters, A., Sawyers Valley	1921	P.P. Loc. 297	8	1	Cutting Jarrah from Permit 363.
Weston, Smailes, & Leibow, Pickering Brook	Feb., 1926	Permit 615	14	4 1/2	Cutting Jarrah from Permit 615.
Walliston Orchardist Co., Walliston	1924	P.P. Loc. 524	12	1	Cutting Jarrah from Permit 618 for fruit cases. Works intermittently.
<b>NANNUP DISTRICT.</b>					
Kauri Timber Co., Ltd., Nannup	1926	S.M. Site 28/33	100	55/60	Cutting Jarrah from Permit 61/11.

## APPENDIX 7.—LIST OF SAWMILLS—continued.

Name of Sawmill Owner and District.	Date of Erection of Mill.	Saw Mill Site, Timber Lease or P.P. Location No.	Horse-power of Mill.	Length of Tramway connecting Mill with Main Line Siding.	Output in loads of Squared Timber per day.	Remarks.
<b>NOGGERUP DISTRICT.</b>						
Adelaide Timber Co., Ltd., Wilga	1908	S.M. Site 14/33	44	M. C. On main line	12	Cutting Jarrah from Permit 57.
Mumballup Timber Syndicate, Mumballup	April, 1925	S.M. Site 42/33	16	...	8	Cutting Jarrah from Permit 492.
Timber Corporation, Ltd., Wilga	Aug., 1925	S.M. Site 49/33	16	...	10	Cutting Jarrah from Permit 216.
Whistler Bros., Diminup	May, 1921	P.P. Nelson, Loc. 1356	32	...	8	Cutting Jarrah and Wandoo from private property.
<b>WURAMING DISTRICT.</b>						
Port & Co., Ltd., No. 1, Pindalup	1911	S.M. Site 13/33	35	0 40	10	Cutting Jarrah from Permit 34/11.
Port & Co., Ltd., No. 2, Pindalup	1923	S.M. Site 27/33	28	10 ... 0	14	Cutting Jarrah from Permit 34/11.
State Saw Mills, No. 4, Wuraming	1926	S.M. Site 45/33	60	...	30	Cutting Jarrah from Permits 79/11 and 387.
<b>YARLOOP DISTRICT.</b>						
Millars' Timber & Trading Co., Ltd., Hoffman	Mar, 1920	Timber Leases 322/113 and 297/113	83	17 0	27	Cutting Jarrah from Leases 322/113 and 297/113 (Part 2).
Millars' Timber & Trading Co., Ltd., Hoffman (Bandmill)	...	do.	32	17 0	12	do.
Millars' Timber & Trading Co., Ltd., No. 1, Mornington	1898	P.P. Loc. 50	120	9 70½	85	Cutting Jarrah from Leases 186/113, 227/113-230/113.
Millars' Timber & Trading Co., Ltd., No. 2, Mornington	Nov., 1926	S.M. Site 62/33	36	...	12	Cutting Jarrah and Tuart from Permit 637.
Moss, F. A., Waroona	June, 1927	...	16	...	6	Cutting Jarrah from Permit 668.
Sundercombe, A., Waroona	Sept., 1920	S.M. Site 36/33	30	31 0	20	Cutting Jarrah from Permit 71/11.

NOTE.—P.P. denotes Private Property, S.M. denotes Sawmill.