

1924.

WESTERN AUSTRALIA.

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# REPORT

OF

# THE FORESTS DEPARTMENT

FOR THE

YEAR ENDED 30<sup>TH</sup> JUNE, 1924,

BY

S. L. KESSELL,

CONSERVATOR OF FORESTS.

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

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[FIRST SESSION OF THE TWELFTH PARLIAMENT.]

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1924.

Forests Department,

Perth, 25th September, 1924.

*The Honourable Minister for Forests.*

Sir,

I have the honour to transmit, herewith, my Report on the operations of this Department for the year ended 30th June, 1924.

I have the honour to be,

Sir,

Your obedient servant,

S. L. KESSELL,

Conservator of Forests.

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# REPORT OF THE FORESTS DEPARTMENT FOR THE YEAR ENDED 30th JUNE, 1924.

## I. CONSTITUTION OF STATE FORESTS.

### 1.—FOREST—RESERVATION.

It is perhaps unfortunate that the practice of forestry has ceased to be considered as a form of Agriculture. The alienation of Crown Lands for all other classes of agricultural development is proceeding rapidly, but the question of definitely setting aside land for forestry purposes is still pending. Forestry has been defined as "The human action directed to the production and utilisation of forest produce." The utilisation side as represented by the timber trade has been strongly established for many years, but the production has been entirely neglected. The setting aside of land for timber production is a matter which vitally affects our national welfare.

It is certainly remarkable that a State possessing only slightly over 2,000,000 acres of prime forest country (.003 of total area) from which it is obtaining annually well over one million pounds sterling of exportable produce (or ten shillings per acre per annum) should be so little concerned with the preservation and perpetuation of its limited forest area. Forestry is a valuable source of rural employment, utilising tracts of country admittedly of little value for other forms of Agriculture.

It is essential that the question of the reservation of land for the production of timber be viewed in its broadest aspect. A considerable destruction of virgin timber may be necessary, in order that land may be cleared and made available for the production of food crops, but, sooner or later, it must be decided that a definite area shall be retained for the production of timber crops, even though a few "pockets" of comparatively good soil may be included in the State Forests dedicated. Forestry cannot be effectively or economically practised if it is not known from day to day whether the interests of the forester or the settler are to be paramount over any given area.

It is hoped that some early action may be taken to dedicate all prime Jarrah forest and prime Karri forest which remain Crown Lands.

It is desired to acknowledge the equitable manner in which the Lands Department, during the year under review, has refrained from alienating land classified by the Forests Department as being prime timber country, and has carried out their surveys so as to exclude from subdivision extensive belts of virgin forest. The designs for subdivision of country south of Pemberton recently prepared by the Surveyor General are fair to both interests. Settlement proceeds, however, but State Forests are not dedicated. As the question of finding accessible land for settlement purposes becomes increasingly difficult, the danger of the des-

truction, in the name of development, of national wealth represented by standing timber becomes correspondingly greater. Within a short time, with rapidly decreasing timber resources and increasing population, it will not be a question of maintaining the export trade, but of finding timber supplies sufficient for local requirements.

### 2.—ALTERATION IN AREA OF FOREST RESERVATION.

#### STATE FORESTS.

*Under Forests Act, 1918:*

	June, 1923.	June, 1924.	Increase. *
	acres.	acres.	acres.
Jarrah ... ..	45,758	47,468	1,710
Karri ... ..	Nil	Nil	...
Tuart ... ..	6,091	6,091	...
Other Species ... ..	540	540	...
	52,389	54,099	1,710

\* The increase is accounted for by amendment of area of State Forest No. 4, Collie District.

### TIMBER RESERVES.

*Under Forests Act, 1918:*

	June, 1923.	June, 1924.	Increase. *
	acres.	acres.	acres.
Jarrah ... ..	326	4,486	4,160
Karri ... ..	1,766	1,766	...
Other Species (Eastern Goldfields)	857,174	857,174	...
	859,266	863,426	4,160

\* The increase is due to the gazettal of a small timber reserve in the Margaret River District.

## II. REVENUE.

(Gross Revenue £127,253.)

The gross revenue for the year 1923-1924 shows an increase of £39,595 over the previous year. The increase is due to additional royalties obtained from both Jarrah and Sandalwood, full particulars concerning which are set out in the items listed hereunder.

### 1.—THE TIMBER TRADE.

The timber trade has been normal during the year. Orders have been sufficient to keep all mills working in full swing, and work at satisfactory rates has been available for all classes of bush workers. The total

production of sawn and hewn timber for the year measured in the square amounted to 15,676,836 cubic feet, an increase of nearly 25 per cent. on the figures for the previous year. Of this quantity 11,126,861 cubic feet were exported at a declared value of £1,365,002, thus constituting a record for the value of the timber exported during any one year. It is interesting to note that in 1910 and 1911 a greater volume was exported at a declared value of less than £1,000,000.

15.5 per cent. of the total output of timber was hewn and the remainder sawn within the State.

The export of dressed timber has diminished until the quantity is almost negligible compared with the total export trade. It is interesting to note that the other States of the Commonwealth have displaced South Africa as the chief market for Western Australian timbers. The quantity and value of timber shipped to the Eastern States during the past year is nearly double that taken during the previous twelve months. South Africa remains second. India and the United Kingdom are both slightly over 1,000,000 cubic feet, and many times in excess of the quantity shipped in the previous year. New Zealand has also nearly doubled the quantity taken in 1922-1923 and is only slightly under the 1,000,000 cubic feet mark.

Arrangements for the purchase of sleepers on behalf of the local Government Railways have been continued, and 121,383 sleepers purchased at rates considerably below those ruling for similar sleepers being purchased for export.

The number of sawmills operating on Crown Lands during the year under review was 70, and in addition some 30 or 40 mills of a much lower average capacity were working on private property. The number of men registered as Timber Workers in the South West was 1,487. This figure is exclusive of navies and labourers employed on railways, roads, etc., and men employed in mills.

In view of the possibility of utilising a considerable volume of timber on country being taken over for Group Settlement purposes in the Margaret River District, arrangements were made with the Lands Department for the letting of permits over this country and certain adjoining Crown Lands, half of the royalty received being credited to Group Settlement Funds. Up to date 268,520 cubic feet of hewn timber and 254,653 cubic feet of logs for milling have been removed from this country.

Timber and articles manufactured from wood have been imported to the value of £133,893, compared with £109,428 for the previous year. This increase is disconcerting, particularly as the greater portion of the amount is paid away to foreign countries for timber for which, in the great majority of cases, we have local woods which could be made to satisfactorily serve the purpose. Proper seasoning methods, reliable grading rules universally applied, and extensive plantations of softwoods are urgently needed to prevent this money leaving the country.

(a) *Concessions and Leases.*—Rents on Concessions, £536; Rents on Leases, £6,500.

In view of the fact that the mill operating on the Canning Concession 12/1 was burnt down in March, 1924, the Governor in Council has sanctioned the extension of this concession as far as the normal cutting operations of this mill are concerned for a period of three months to enable the plant to be re-

erected and operated until 15th December, 1925, in lieu of 15th September, 1925.

(b) *Saw Milling Permits granted under Section 11 of The Land Act Amendment Act, 1904.*—Royalties: Jarrah, £31,358; Karri, £9,759.

As set out in the Annual Report for 1922-1923, a regulation was gazetted on 13th June, 1923, notifying sawmillers concerning a scale of royalties to come into force on 1st January, 1924.

It was realised that the proposed scale was not without anomalies but subsequent to its gazettal a deputation from the Sawmillers' Association made out such a strong case against the proposals that a recommendation was forwarded to the Hon. the Minister for Forests, suggesting that a temporary Royalty Appraisal Board be appointed to draw up a sliding scale for all permits concerned, which would take into consideration—

- (1) The distance from railway siding to port of shipment or market.
- (2) The distance from siding to mill.
- (3) The distance from mill to bush landing.
- (4) Quality of bush as indicated both by the loadage per acre and the recovery from individual trees.
- (5) The accessibility of the timber.

As a result of this recommendation the Government appointed a Board consisting of—

- S. L. Kessell, Conservator of Forests, Chairman,  
A. J. McNeil, Member of State Arbitration Court,  
M. J. Calanchini, Under Secretary for Mines.

The Board commenced its investigations on the 30th October, 1923, and during the course of its inquiries held 16 sittings and visited several permit areas.

It was impossible to complete investigations and prepare recommendations before 1st January, 1924, and consequently with the approval of the Hon. the Minister for Forests, the various permit holders concerned were informed that in the event of the royalties finally fixed by the Board and approved by the Government being less than those prescribed to come into effect from 1st January, 1924, their accounts would be credited with any amounts paid in excess of such new rates.

As the extension of Millars' Leases and Concessions was granted subject to the payment of prescribed royalties for the period of the extension, the Board decided to deal with these leases and concessions on the same basis as Land Act permits.

A preliminary scale of royalties based on information at the disposal of the Board was drawn up and submitted to Sawmillers concerned. In preparing this royalty scale the existing minimum was adopted for permits most disadvantageously situated and corresponding increases made on account of more favourable conditions. A fixed time was allowed for appeals, and arrangements were made for representatives of firms appealing to appear before the Board and explain their views.

As a result of these appeals the list was slightly revised and in a unanimous recommendation the following rates, which have since been gazetted as a regulation, were suggested:—

## FORESTS ACT, 1918.

## Regulations.

Forests Department,  
Perth, 4th June, 1924.

F.D. 1505/20.

HIS Excellency the Governor in Executive Council has been pleased, on the recommendation of the Conservator of Forests, to repeal the Second Schedule to the Forest Regulations, 1920, published in the *Government Gazette* of the 15th day of June, 1923 and to prescribe and insert in such Regulations a schedule in lieu thereof, as follows:—

## The Second Schedule.

## ROYALTIES.

1. The Conservator may, with the approval of the Governor, classify permits (as defined in Regulation 20) and concessions and timber or special leases in respect of which royalty is payable under Section 6 of the Act, as of Class A, B, C, D, E, F, G, or H.
2. The royalty to be assessed and payable on Jarrah logs in the round taken under permits as defined (which have not been submitted to public auction or tender) or under timber concessions and timber or special leases by virtue of Section 6 of the Act, shall be as follows:—

In respect of permits and leases of—

- Class A.—£— —. 1.55d. per cubic foot.  
 Class B.—£— —. 1.41d. per cubic foot.  
 Class C.—£— —. 1.27d. per cubic foot.  
 Class D.—£— —. 1.13d. per cubic foot.  
 Class E.—£— —. 0.99d. per cubic foot.  
 Class F.—£— —. 0.85d. per cubic foot.  
 Class G.—£— —. 0.71d. per cubic foot.  
 Class H.—£— —. 0.6d. per cubic foot.

## 3. The Royalty—

- (a) on Karri logs in the round shall be £— —. 0.6d. per cubic foot;
- (b) on Hewn Jarrah or Karri sleepers measured in the square shall be three times the rates prescribed in paragraphs 2 and 3 (a);
- (c) on Sawn and Hewn Beams with heart in, shall be £— —. 3.6d. per lineal foot;
- (d) on Split, Sawn, and Round timber cut for mining purposes other than firewood, shall be £— —. 1.2d. per cubic foot.

4. Royalty on Mallet bark shall be 10/-d. per ton.

5. The foregoing scale of Royalties shall come into force on the first day of July, 1924. Provided that where the rate payable by virtue of any permit or lease under the foregoing scale is less than the rate prescribed in the Schedule of Royalties published in the *Government Gazette* of the 15th June, 1923, the rate set out above for such permit or lease shall apply as from the first day of January, 1924. Provided also that such royalties shall be payable on timber obtained from the timber leases referred to only during the period of extension granted in accordance with Section 6 (b) (1) of "The Forests Act, 1918."

## Inspection Fees.

6. Sawn and hewn timber for railway sleepers, £— —. 0.6d. per cubic foot.

Other sawn and hewn timber, £— —. 0.8d. per cubic foot.

Provided that the Conservator may remit such inspection fees for the inspection of timber for use within the State, but, subject to the discount referred to hereunder, the minimum fee shall be for timber for railway sleepers, £— —. 0.3d. per cubic foot, and for other sawn and hewn timber, £— —. 0.4d. per cubic foot.

Provided also, that inspection fees at half rates shall be payable for the re-inspection of sleepers in respect of which inspection fees at the full rates have been paid.

## Discount.

7. If payment of royalties and/or inspection fees is made within the month within which accounts are rendered, or such extended period, if any, as the Conservator in his discretion may determine, a discount of 15 per cent. will be allowed.

S. L. KESSELL,  
Conservator of Forests.

## FORESTS ACT, 1918.

## Regulations.

Forests Department,  
Perth, 11th June, 1924.

F.D. 1505/20.

HIS Excellency the Governor in Executive Council has been pleased, on the recommendation of the Conservator of

Forests, to approve of the classification of permits and timber leases as set out hereunder, pursuant to paragraph 1 of the Second Schedule to Regulations under "The Forests Act, 1918," as published in the *Government Gazette* on the 6th day of June, 1924:—

## Classification of Permits and Timber Leases.

Class A—Timber Leases 186/113, 227/113, 228/113, 229/113, 230/113, 269/113, 296/113, 297/113, 325/113.  
Special Lease 12/1.

Permit 78/11.

Class B—Timber Leases 145/113, 149/113, 150/113.

Permits 37/11, 80/11, 76/11, 84/11.

Class C—Timber Leases 244/113, 257/113, 261/113, 291/113, 299/113, 322/113, 331/113.

Permits 34/11 (part 1), 60/11, 61/11, 79/11, 81/11.

Class D—Permits 63/11, 82/11, 87/11, 93/11, 96/11.

Class E—Permits 27/11, 44/11, 71/11, 83/11.

Class F—Permits 89/11, 92/11.

Class G—Permits 34/11 (part 2) 94/11, 95/11, 97/11, 99/11, 216.

Class H—Permits 42/11, 73/11, 85/11, 86/11.

S. L. KESSELL,  
Conservator of Forests.

(c) *Permits under Forests Act, 1918.*—Royalties, Sawmilling, Jarrah, £15,492; Hewing, Jarrah, £3,046.

New permits have been limited to areas where one or other of the following conditions applied:—

- (1) The land is urgently required for settlement purposes.
- (2) The timber is required for local requirements.
- (3) A further supply of timber is required to keep an existing milling plant operating.

It is becoming increasingly apparent to all persons interested in the timber trade, that big reserves not held under some form of tenure do not exist. During the past year certain speculators who have few or no timber cutting rights, have taken contracts for the supply of large quantities of timber to overseas buyers at comparatively low rates. Such persons have found considerable difficulty in fulfilling their contracts and have been willing to pay high rates for timber from Crown Lands. Such business, however, is not in the best interests of the State, for it results in the price being lowered in the overseas market for Western Australian timbers to the disadvantage of established firms who have invested a large amount of capital in Western Australia.

Orders for Jarrah are plentiful and should continue so for many years as the number of hardwood timbers on the world's markets, possessing equally durable properties without treatment, is limited.

(d) *Piles, Poles, and Beams.*—Royalty: Piles and poles, £464; Beams, £25.

The Department has not reached that stage of organisation when it can satisfactorily control the removal of poles in conformance with the silvicultural requirements of the bush, and consequently no move has been made in the direction of increasing the output of this class of forest produce from Crown Lands. All permits for the cutting of timber, whether by hewing or sawmilling, from country in process of alienation in connection with Group Settlement include a condition authorising the removal of poles and piles at half royalty rates.

A very unsatisfactory position existed with reference to clearing of tracks and obtaining pole supplies for telephone lines passing through timber country. After protracted negotiations an under-

taking has been received from the Deputy Postmaster General—

- (1) To notify the Department concerning intended routes of telephone or telegraph lines through timbered country;
- (2) to confer with the local Forester concerning young trees to be felled for pole supplies;
- (3) to pay royalties on all poles obtained from Crown Lands.

## 2.—INSPECTION BRANCH.

(Inspection fees £9,976).

The bulk of inspection work, as in previous years, is in connection with the inspection of sleepers for export. All sleepers are inspected according to standard specifications fixed by the Department, and all buyers are now content to accept this standard and pay on inspection returns supplied by the Department.

The volume of sawn sleepers inspected was 1,982-471 cubic feet.

The volume of hewn sleepers inspected was 2,431-125 cubic feet.

Other classes of timber inspected amounted to 263,160 cubic feet.

A considerable quantity of this timber is re-inspected by the purchaser at port of destination. Complaints received have not in any case exceeded one per cent. of the shipment concerned. In view of the fact that practically the whole of the timber is inspected a few days after the tree is cut in the forest, and is subjected to considerable handling and weathering before reaching its destination, the above constitutes a very fine record.

## 3.—MINING TIMBER.

There has been no alteration affecting the obtaining of timber or firewood for mines.

Reforestation operations are proceeding satisfactorily on mining leases at Collie.

Dredge owners at Greenbushes are using waste timber from the Timber Corporation's mill at North Greenbushes to a far greater extent, and the cutting of first class Jarrah logs for firewood has ceased.

There is a shortage of mining timber as distinct from firewood in many parts of the Eastern Goldfields, and the Golden Mile will have to look to the Firewood Companies operating on virgin bush to obtain mining timber for their requirements before the firewood cutters commence operations.

## 4.—SANDALWOOD.

(Royalty, £44,271.)

As set out in the previous Annual Report, tenders for the right to remove 6,000 tons of sandalwood per annum from Crown Lands for a period of five years, were called in April, 1923. No decision was arrived at until October, when regulations were

gazetted authorising the issue of licenses for the removal of sandalwood from Crown Lands at a royalty of £25, with a rebate of £16 per ton to be allowed on the production of satisfactory evidence that such amount had been paid the getter by the licensee for wood on trucks, Fremantle.

Licenses were issued to the following firms authorising the obtaining from Crown Lands of the quantity listed (per annum):—

	Maximum.	Minimum.
	tons.	tons.
Paterson & Co., Ltd., ... ..	3,720	3,120
W.A. Sandalwood Co-Operative Co., Ltd. ... ..	1,500	1,260
John Hector & Sons ... ..	600	480
Burridge & Warren ... ..	144	120
Total ... ..	5,964	4,980

All firms who submitted tenders were granted licenses. The allocation of quantities was based on the extent to which the various firms had been interested in the export trade during previous years. Existing licenses will expire on 31st January, 1925, but firms concerned were informed that it was the intention of the Government responsible for the regulations that the system introduced by such regulations should continue in force for at least five years.

The price of £16 per ton was in respect of sandalwood of fair average quality, and the regulations provided for reductions of this price to be approved by the Conservator for sandalwood below fair average quality, after inspection and report on such sandalwood by an officer of the Department. It was impossible to lay down hard and fast specifications of what constituted fair average quality, and the determination of this is largely a matter of experience. In dealing with applications for reduction in the price of sandalwood, the main factors considered were:—

- (1) The percentage of shelly and brittle wood (which chips and breaks in handling);
- (2) The size of the wood;
- (3) The percentage of uncleaned or badly cleaned sandalwood.

Officers of the Department in the first instance made systematic tallies of forty-six trucks of sandalwood received from various localities, and the number of pieces to the ton varied from 85 to 357. These tallies were made prior to the gazettal of the regulations, and careful note was made of the lowest grade of wood firms accepted without reduction, and amount of deduction they made when free to deal with the business themselves.

The statement hereunder shows the quantity of sandalwood upon which reductions of various amounts have been allowed, and the percentage that these quantities bear to the total of sandalwood, exclusive of roots and butts, received under license up to the 30th June, 1924:—

No deduction made.	10s. per ton.	£1 per ton.	£1/10/- per ton.	£2 per ton.	£2/10/- per ton.	£3/- per ton.	£3/10/- per ton.	Total.
tons. 3,390 90.7%	tons. 23 .6%	tons. 62 1.7%	tons. 82 2.2%	tons. 120 3.2%	tons. 52 1.4%	tons. 5 .1%	tons. 4 .1%	tons. 3,738 ...

Average price received by pullers per ton = £15 16s. 9d.

Of the sandalwood confiscated by the Department reductions were made in respect of approximately 37 tons.

After 1st November, 1923, licensees were authorised collectively to remove a maximum quantity of 500 tons per month of sandalwood from Crown Lands. At this date there were estimated to be between 2,000 and 3,000 tons of pulled sandalwood in the bush, *i.e.*, licensees' quotas for four to six months. Accordingly, pulling from Crown Lands was stopped until these stocks were cleaned up. Numerous cases

occurred of persons pulling sandalwood before they were permitted to do so, and, where possible, these persons have been prosecuted or their sandalwood confiscated. For these offences 17 persons have been prosecuted. Investigations were made in respect of 568 tons, in which 73 persons were concerned, with the following results:—

	Tons.	No. of persons concerned.
Confiscations were made, or are pending in respect of ... ..	128	33
Royalty was accepted in full settlement of claims in respect of ... ..	107	6
Proceeds were held up, but released for various reasons ( <i>i.e.</i> insufficient evidence, representations on behalf of offenders, etc.) in respect of ... ..	333	34

The result of this illegal pulling was to delay the date at which new orders for pulling could be placed. These new orders were actually placed on the 2nd June, 1924. So that as many persons as possible should receive orders, the maximum annual order to be given to any one person was fixed at 100 tons.

Orders have been placed for four months, the quantity of such orders being based on one-third of the total annual orders. These orders vary in quantity from 12 tons to 100 tons per annum, as shown by statement hereunder:—

	Tons.											
	4	5	8	10	12	15	16	20	25	32	33½	
Orders placed for 4 months ... ..	...	...	...	...	...	...	...	...	...	...	...	
	Persons.											
	3	6	47	19	24	3	28	7	6	5	4	
No. of persons receiving these orders	3	6	47	19	24	3	28	7	6	5	4	

Thus orders have been placed with 152 sandalwood getters. The number of persons who have registered as sandalwood getters is 751, but in issuing such registrations it has been made clear in each individual case that the certificate of registration does not confer on the holder the right to pull sandalwood on Crown Lands without an order from a licensee. As all persons engaged in pulling, cleaning and carting sandalwood are required to be registered, many more persons are actually employed than would appear to be indicated by the number holding orders. Registration has been limited to natural born or naturalised British subjects.

Orders for 750 tons of sandalwood were set aside for prospectors. In view of the number of applicants for prospectors' orders, the quantity available for the period from 1st June, 1924, to 31st January, 1925, has been allocated, 147 prospectors now holding an order for 4 tons each.

The quantity of sandalwood removed under licenses is exclusive of roots and butts, and consequently the total quantity of sandalwood which may be removed from Crown Lands each month is increased by at least 10%. Payment is made for roots and butts to the sandalwood getter at the rate of £12 a ton. Experimental cuttings showed that roots and butts constituted about 10% by weight of sandalwood consigned to Fremantle. Payment has been made, therefore, at the rate of £16 per ton for 9/10ths and £12 a ton for 1/10th of sandalwood trucked. Of recent months the percentage of roots and butts has increased to between 12 and 13%. Notwithstanding this, the sandalwood getter has been paid at the rate of £16 for 9/10ths of sandalwood pulled before the 1st November, 1923. Under new orders runner roots down to 1½ inches at the small end may be consigned, so that roots and butts may be expected to constitute a greater percentage of sandalwood consigned than heretofore. The average percentage as determined by actual weighings will, in future, be paid for at £12 per ton.

On arrival at Fremantle, roots and butts are severed, segregated, and forwarded to oil distillers as directed. The sandalwood oil distillers pay £14 per ton for roots and butts delivered to them. The orders in hand for roots and butts for twelve months from date of gazettal of new regulations are as follows:—

C. L. Braddock—100 tons per annum.  
Plaimar, Ltd.—Balance available.

Up to the 30th June, 1924, C. L. Braddock has received 60 tons, and Plaimar, Ltd. 403 tons. (See Section 7).

Now that fair average quality sandalwood from Crown Lands costs the merchant £25 per ton, the value of sandalwood on private property has been correspondingly increased, and, as there is no fixed royalty or minimum payment to the getters for this wood, there has been considerable competition for supplies from private property. From the 1st November, 1923, to the 30th June, 1924, 2,023 tons of sandalwood have been consigned as from private property.

Many persons have declared sandalwood to have been obtained from private property when, in fact, it has been removed from Crown Lands. Crown Lands sandalwood consigned in such a way, of course, escapes the £9 a ton royalty. In one case alone, a person declared 95 tons to have been obtained from a certain property, when an inspection made by departmental officers showed that not more than 10 tons could have been removed therefrom. The royalty involved in this case amounted to £765. So numerous have been these cases that four additional rangers have been employed in protecting this property of the Crown. Two of these rangers assist Forester Cusack in patrolling the sandalwood districts East of Southern Cross, and the other two are engaged on similar work in sandalwood districts West of Southern Cross.



## 5.—TIMBER CUT ILLEGALLY.

Although there have been 41 prosecutions resulting in 38 convictions for breaches of the Forests Act relating to unlawful removal of timber (other than sandalwood) and other offences in the prime timber country, none have been of a very serious nature, and in practically every case small fines have been considered by the magistrate as sufficient deterrent.

## 6.—MINOR FOREST PRODUCE.

Although industries at present using minor forest produce are of very little importance in direct revenue production, their establishment is of considerable interest as they represent secondary industries using raw materials at present either wasted or ignored.

The distillation of sandalwood oil within the State has increased rapidly, and during the past year the production has been doubled, the export for the year exceeding 40,000 lbs. weight.

Several firms have interested themselves in the distillation of eucalyptus oil from the leaves of various Western Australian species of Eucalypts. One permit has been granted for the removal of mallee leaves for this purpose, and another on a much larger scale over extensive areas of mallee country is under consideration. One firm, by an application for the right to cut Salmon Gum for this purpose, has raised the question of the advisability of allowing arborescent species to be felled for the purpose of obtaining the leaves only. Although there are thousands of acres of this and other species being cleared in wheat areas, practical difficulties in using such sources of supply for oil distillation are very great. From analyses made it would appear that oil distillers must look to mallee species for the supply of leaves. From such species leaves may be comparatively cheaply gathered every few years. It has been decided that no further permits will be issued to fell arborescent species for their leaves alone unless it is desired to clear the land on which they are growing for some definite purpose.

It would appear that the extraction of a perfume from the flowers of certain species of *Boronia* is likely to develop to such an extent that firms must look to cultivated plants for their supply of blossom, rather than to indigenous "patches." Pending the cultivation of plants a permit authorising the collection from "patches" on Crown Lands in the Bridge-town-Manjimup District has been issued.

## 7.—REVENUE FROM OTHER SOURCES.

Firewood permits yielded a revenue of £389, Registration Fees £400, License Fees £399, Sale of Publications, £238, and Confiscated Timber, £1,103. Other items of any importance, such as sale of trees and seeds from Hamel Nursery (£427), are dealt with elsewhere in the report.

## III. EXPENDITURE.

(Total expenditure from all funds, £48,333.)

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

(Charged against Consolidated Revenue, £15,835.)

This item shows an increase of approximately four per cent. over the expenditure for the previous year, but is more than offset by an increase of 45 per cent. in the gross revenue.

## 2.—REFORESTATION FUND.

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

		£
Gross Revenue of Department, 1923-24	....	126,494
Less—		£
Consolidated Revenue Expenditure	....	15,836
Interest on Loan	....	2,080
Sinking Fund	....	195
Retiring Allowance	....	124
Salary (Conservator)	....	654
		18,889
Net Revenue	....	£107,605

Three-fifths of the above sum, representing the net revenue of the department, is placed to the credit of the Reforestation Fund, the position of which is set out below:—

<i>Reforestation Fund</i> —		£
Balance at 1st July, 1923	....	38,586
Transferred from Revenue, 1923-24	....	64,563
Sundry Recoups, 1923-24	....	21
		103,170
Less Expenditure for 1923-24	....	31,625
Balance carried forward	....	£71,545

(a) *Working Plan No. 1, Mundaring District.*

(Expenditure, £3,576.)

*Survey (Topographical).*—23,000 acres have been surveyed in accordance with the general lines now adopted in connection with the Topographical Survey of the Jarrah forest. A detailed account of the work is given in the report on Topographical Survey on page 17. Existing lithographs, although they gave satisfaction for general orientation and subdivision, were unsatisfactory for Fire-Control, and it is proposed to substitute a revised compartment plan of the area, giving greater prominence to roads and tracks and less to minor topographical features. It is intended to compile new lithographs. The cost of this work is shown under the heading Topographical Survey, page 17.

*Control of Utilisation.*—Cutting operations on this area to supply logs to five (5) small mills, are in progress by Concessionaires and Permit-holders, and on the area of their operations more intensive forest management has been possible. The method of control of exploitation by the minimum girth restriction has been replaced by tree-marking. Under this latter system, the only trees cut are those the removal of which is indicated on silvicultural grounds. Also permit holders are restricted to definite areas until they are cut out to the satisfaction of the Forester in Charge.

The operations of one small fruit case mill in particular have assisted very considerably in dealing with the problem of the utilisation of all the standing mature trees. Timber usually considered useless has been worked up, and trees have even been felled to obtain logs from the limbs. Permits were granted to remove faulty timber for vine props and miscellaneous purposes, and dead timber for firewood.

*Sylvicultural Work* (£362).—Cutting operations for trade purposes were followed by the treatment of the areas for regeneration under the Group Selection System. This work was carried out by Departmental employees, and a detailed description of the operations is given under the heading *Sylvicultural Notes*, on page 19. A summary of the location and area of the regeneration cleaning is as follows:—

Compartment 111	....	....	680	acres
Do.	13	....	165	"
Do.	31	....	79	"
Do.	32	....	92	"
Total	....	....	1,016	"

The cost per acre was 7s. 1d.

*Fire Control* (£944).—The report concerning fire control in this district is of a very unsatisfactory nature. Conditions were admittedly bad, and incendiary rampant, but the primary cause of the comparatively large areas burnt by a series of fires which occurred towards the end of the season was lack of proper organisation. Local officers worked hard and conscientiously, but without any proper attention to the instructions concerning methods and system. Successful fire control cannot be based on a strenuous personal effort only. Although the area burnt was considerable, the fires were confined to cut over country carrying little or no regrowth, with the exception of eighteen acres of pine plantation deliberately lighted within the ploughed firebreaks.

The season under review, which was the driest for the district since 1904, commenced about the middle of November. The total rainfall for the period 1st November to 30th April was two inches. The season was marked in the latter months by the prolonged easterly winds, which were particularly strong in the month of March. Light rains fell on the 6th of November, and it was found that the bush would carry a running fire about the middle of the month. Gunjin Lookout Station was manned on the 23rd, and the Station on Mt. Dale on the

29th of November. The towers were, however, not manned early enough, as a considerable area of country was burnt prior to the 23rd November in Compartments 183, 179, 146, and 147. One man was caught in the act of lighting fires in Compartment 183 on the 24th November.

Preliminary burning was carried out in November over 1,000 acres in Compartments 140, 132, and 139, and 700 acres in Compartments 107 and 110, which were to be cut over for mill logs in the season.

The particularly dry weather conditions, and the strong easterly winds which prevailed throughout the month of March, made the actual fighting of fires very difficult. The position was seriously aggravated by incendiarism. It is a remarkable fact that over 80 per cent. of the fires occur on Saturday afternoons and Sundays. On Sunday, 2nd March, a string of fourteen fires on a ten-mile front were deliberately lit by a person or persons unknown. Judging from the manner in which the smoke of the several fires, as seen from the towers, arose at more or less regular intervals across the area, there can be no doubt that the fires represent an organised attempt to create trouble, and, if possible, burn out the protected area. The first of these fires was lit at 11 a.m. and the work of the local staff in having such a number of fires under control by Monday morning is most commendable. Further fires were, however, lit on the following Tuesday, and a difficult position arose through the fires joining up with a very extensive fire burning outside the boundary. One pine plantation of eighteen acres was burnt by a fire which was lit inside the ploughed fire breaks. Insufficient precautions were taken to prevent the outside fire crossing the boundary, with the result that a considerable area of country was burnt before it could be got under control. A fire, which was allowed to come in over the south boundary, burnt a further large area at the same time.

The season ended with the rains on the 4th May, the last fire occurring on 24th April. The total number of fires reported was 94, details concerning which are scheduled hereunder:—

Number of Fires.

Area Burnt—Acres.	Nov.	Dec.	Jan.	Feb.	Mar.	Apl.	Total.
0 to 1	...	...	...	...	1	...	1
2 to 10	1	4	6	7	2	...	20
11 to 20	...	2	4	2	1	1	10
21 to 50	1	5	7	10	6	1	30
51 to 100	1	...	3	3	1	2	10
101 to 200	...	...	5	2	2	...	9
201 to 300	...	...	1	...	3	...	4
Over 300	...	...	...	1	8	1	10
Total	3	11	26	25	24	5	94

Causes of Fires.

Cause.	Nov.	Dec.	Jan.	Feb.	Mar.	Apl.	Total.
Travellers	1	3	5	1	2	1	13
Hunters and Bee Robbers	...	...	3	8	11	...	22
Settlers burning off	...	2	3	9	5	3	22
Campers	...	...	3	3	3	1	10
Government Locos.	...	...	1	...	1	...	2
Mill Locos.	...	...	...	...	...	...	...
Bush Workers	1	2	3	2	1	...	9
Unknown	1	4	8	2	1	...	16
Total	3	11	26	25	24	5	94

Area under control ....	120,000 acres
Area burnt ....	29,506 "
Percentage burnt ....	24.58 %
Total Cost ....	£944
Cost per acre ....	1.888 pence

The detailed expenditure is listed hereunder:—

	£
Publicity Work ....	7
Manning Lookout Stations ....	150
Patrolling ....	88
Fire Fighting ....	456
Maintenance of Firebreaks ....	22
Upkeep of Government Horses and Vehicles ....	53
Horse Allowances ....	168

*Permanent Plant* (£959).—The previous arrangements for the accommodation of the staff in the Working Circle were most unsatisfactory. The direction of operations was carried out under a great disadvantage, from a headquarters consisting of an iron hut and part of an office privately owned. A Forester's house and office, Forest Workman's Cottage, Staff hut and stables, together with the necessary fencing, have been erected at Mundaring Weir.

*Administration*.—Assistant District Forest Officer G. E. Brockway was transferred to Collie on 5th September, 1923.

A new Forest District, called the Mundaring District, embracing the 120,000 acres of the Working Circle under Fire Control, and those portions of the old Metropolitan District immediately surrounding it, was formed as from 12th December, 1923.

Forester H. Smith was given control of the District and Working Circle.

Assistant Forester Hebb was transferred to the District as an Assistant, with headquarters at Barton's Forest Station, on 26th September, 1923.

(b.) *Working Plan No. 2—Tuart Working Circle.*

(Expenditure, £5,920.)

*Control of Utilisation*.—The Departmental Sawmill at Wonnerup was reopened in April to remove the permissible cut for two financial years. The current coupe consists of Compartments 14, 12a, 12, 11, 10, and 9, and is marked for falling by the Forester in Charge, on the Group Selection System. Cutting operations for the period worked in this financial year were confined to compartment 14. A bush tramline, as forecasted in last year's annual report, was constructed through the area of this year's cutting. The route followed was along the main Bunbury road to the Ludlow River, from which the line was continued along the old Bunbury-Vasse road. The distance completed was 386 chains (4 miles 66 chs.). The bush line is connected with the mill through the Wonnerup station yard; 45, 46 $\frac{1}{4}$ , and 60 lb. scrap rails from the Western Australian Government Railways were used in the construction. A bridge over the Ludlow River was necessary. This bridge is 200 feet long; and 11 $\frac{1}{2}$  feet in height to the crown of the rail from the bed of the river.

Details of cost are listed hereunder:—

	£	s. d.	£	s. d.
Total cost of connecting Rail-head to Mill			3,679	3 6
(a) W.A.G.R. cost of connecting to Main Line	129	4 10		
(b) Landings	24	18 3		
(c) Bridge over the Ludlow River	121	9 3		
(1) Labour—£84 15 4				
(2) Material—£36 13 11			275	12 4
Total cost of Line Construction			£3,403	11 2

	£	s. d.
Unit cost of Construction (per mile of track)	705	8 0
Total cost of Material	2,846	16 5
Unit cost of Material (per mile of track)	590	0 3
Total cost of Labour	556	14 9
Unit cost of Labour	115	7 9

The cost of platelaying, forming, and boxing was £104 per mile of track, or 26s. per chain.

The Railway Department charged for the material, which was purely scrap, at nominal or calculated weights, making the cost of material higher than anticipated. The cost of rails, fishplates, fishbolts and dogspikes on trucks at Wonnerup was £484 19s. 10d. per mile of track. The rail freight alone on this material amounted to £124 1s. 8d. per mile of track, costing more than the labour in construction. Included in these figures is a small quantity of unused material which is an offset against the price.

The use of the Vaughan Drag Saw was continued in connection with falling operations. 620 loads were felled at a cost of £133 11s. 2d., or 4s. 5 $\frac{1}{2}$ d. per load, inclusive of top-disposal operations. This cost is still below the piece-work rate for the district.

Tenders were called for the hauling, and the work both of bush haulage by bullocks and hauling along the tramline by horses is being carried out by the one contractor.

The total amount expended in connection with the Tuart Mill, exclusive of tramline charges, was £1,154. No balance sheet is included in this year's report owing to the short period during which the mill operated.

*Sylvicultural Work*.—Operations were confined to experimental work owing to the light seed fall during the period under review. The only groups of satisfactory regrowth in the forest occurred in the lime kiln paddock which was fenced seven years ago, and is the only area which has been closed to unrestricted grazing for more than two years.

Details of destruction to seedling regrowth by browsing cattle are given under the heading of Grazing Control. These experiments confirmed deductions already arrived at concerning the effect of overstocking on the regeneration of Tuart. Other experimental work would appear to indicate that after a heavy seed year satisfactory regeneration may be secured by adopting the same sylvicultural treatment that has been found to yield satisfactory results with other types of Eucalypt forests.

*Fire-control* (£144).—Fire-control was exercised over 5,228 acres in this Working Circle. The method employed was supervision by the resident Forester, with patrol on dangerous days, assisted by the maintenance of external and subdivisional firebreaks, one-half chain in width. The season, which commenced in early November and finished with the first heavy rains on 10th May, 1924, was one of the driest summers ever experienced in the district.

Practically the whole of the country immediately surrounding the protected area was burned during the season. Only one of the fires, which was extinguished after burning  $1\frac{1}{2}$  acres in Compt. 18, entered the protected area. Two fires were lit inside the cultivated breaks in Compt. 15, one deliberately by travellers on the road, but the cause of the other is unknown. Each of the fires was confined to less than  $2\frac{1}{2}$  acres. The expenditure in connection with fire control is as follows:—

	£	s.	d.
(a) Patrolling .. .. .	2	0	0
(b) Fire-fighting, including supervision at burning off on private property adjoining .. .. .	10	0	0
(c) Maintenance of firebreaks .. .. .	132	0	0
(1) Cultivation of 2,860 chs. at $5\frac{1}{4}$ d. per linear chain.			
(2) Ploughing 390 chs. at $6\frac{1}{2}$ d. per linear chain of 12ft. strip.			
(3) Sucker bashing £59.			
	<hr/>		
Total	£144	0	0

*Causes of fires:*

Settlers burning off .. .. .	1
Road travellers .. .. .	1
Unknown .. .. .	1
	—
	3
	—

Area protected—5,228 acres.

Area burnt—6 acres.

Percentage burnt—1 per cent.

Total cost—£144.

The most difficult problem in connection with the maintenance of firebreaks is the bashing of the shoots from the peppermint stumps. The cost of complete grubbing is prohibitive. It is noticed, however, that the repeated sucker-bashing and cultivation are having the effect of gradually loosening and partially uprooting the peppermint stumps.

*Grazing Control (£32).*—Forest grazing leases were again sold by auction, rights being granted for periods of four and six months. Six leases totalling 3,036 acres were sold for a total amount of £90. Grazing in the Working Circle was limited previously to one head of stock to twenty acres. Good feed, however, is supported by this type of country only during the late winter months, and during spring. Destruction of the young Tuarts occurs only when the paddocks are over-stocked and eaten out. It was decided, therefore, as shown in the last annual report, that grazing rights would be let for only six months in the year. With the object of testing the damage from cattle grazing under the restricted conditions of one head of stock to twenty acres for six months in the year, an experimental area was established. A small plot, one acre in extent in Compt. 9, was planted with approximately 500 one year old seedlings in July, 1923. All these seedlings were eaten off and destroyed by November, 1923. Compartments cut over and undergoing regeneration are closed to grazing.

*Permanent Plant (£143).*—Stables were erected at Headquarters, the previous arrangements with the use of an old building being unsatisfactory and providing insufficient accommodation for the stock, vehicles, and implements. The total cost of the stables was £143, being £106 for material and £37 for labour.

Two wells were sunk in connection with the supply of water for houses, one at the mill and one at the Forest Workmen's cottages. The dimensions in each case were 4ft. x 4ft. and 20ft. deep. The total cost was £15, or 7s. 6d. per foot.

*Administration (£452).*—Asst. Forester Trainor was transferred to Ludlow on the 16th of August, 1923, to take charge of this Working Circle.

(c.) *Working Plan No. 3—Collie Coalfields Working Circle.*

(Expenditure, £3,578.)

*Survey (£282).*—Prior to the establishment of Topographical Survey Camps under a central control, a certain amount of work was done in the Working Circle in the months of September, October, and November. Roads, old tramway formations, well marked tracks, and the more prominently defined creeks were traversed. The instruments used were the Verschoyle Transit, Prismatic Compass and the Plane Table. Distances were measured with a five-chain steel band. Gangs of three men to each instrument were employed. 63,000 acres were completed at a cost of 1.7d. per acre. A Departmental lithograph, showing these features, will be prepared for the district when further survey work, now being carried out, is completed.

*Control of Utilisation.*—This Working Circle is divided into Compartments according to the Mining Lease boundaries. The silvicultural system applied is clear felling for both coppice and seedling regrowth. Compartments are cut over in regular order by contractors for the mining companies, who remove all round and free splitting timber for mining purposes.

On the Proprietary and Co-operative Leases arrangements have been made for the removal, for sawmilling, of any crooked or windy logs which remain. It is hoped that similar arrangements may be entered into for the other leases.

After trade cutting operations have been completed, it has been found that some useful timber still remains. In order to effect as thorough utilisation as possible of all standing timber, Departmental employees are then engaged to work up such trees into mining timber by direct conversion. The expenditure, consisting of wages, on this work was £64, and the amount received from sales of timber—£76.

During the year under review, Departmental operations were extended to bring under Forest Management an area of 63,000 acres, to the immediate north and south of the Collie Coalfields Working Circle.

A Working Plan for this additional area is in course of preparation.

The silvicultural system applied, is selection by groups. The bush is first worked over for mill logs, and afterwards any trees which remain suitable for the purpose are converted into sleepers.

*Silvicultural Work.*—Following these cutting operations, Regeneration Cleaning is carried out to provide conditions suitable for the natural regeneration of Jarrah. On the Collie Coalfields Working Circle this work is designed to induce coppice regrowth. This, associated with any seedling regrowth which may occur, will give the maximum volume production in the shortest possible time. Details of the method were given in the last annual report.

580 acres were treated at a cost of £273 (or 9s. 4d. per acre) making a total of 1,467 acres treated since operations were commenced in 1920-1921.

On the area outside the Coal Mining Leases, Regeneration Cleaning under the Group Selection System follows trade cutting operations. Details of this work are given under Sylvicultural Notes on Jarrah. The area treated was 240 acres.

*Fire Control* (£855).—Fire Control was exercised over 100,000 acres of country in the vicinity of Collie. Fires were located from the Lookout Station, situate  $4\frac{1}{2}$  miles South West of Collie, communication with the men working in the bush being maintained by telephone.

The season under review, although not exceptionally hot, was long and dry, only 126 points of rain having fallen during the seven months ending April 30th. The fire season commenced about the middle of November, when the bush, in many places would carry a running fire.

The Lookout Station was manned\* from November 25th, and on this day the first fire occurred.

Sucker-bashing, with the subsequent burning of the litter, was carried out on the established fire breaks, along roads on the coal mining leases. On several occasions, owing to the heavy fall of smoke over Collie preventing the location of fires from the tower, it was found necessary to send out patrols. In one instance it was impossible to see more than 100 yards from the lookout station. The greatest difficulty experienced was in dealing with external fires, adjacent to the boundaries of the protected area. Practically the whole of the country adjoining the protected area was burned during the season. At one period, a very fierce fire approached the western boundary on a twelve mile front. All the available men were employed day and night counter firing. This fire was stopped with only 120 acres of the protected country burnt over. The season closed on May the 11th, when the winter rains commenced. The last fire on the protected area occurred on May 10th.

The total number of fires which occurred in the protected area was 95, as scheduled hereunder:—

Number of Fires.

Area Burnt—Acres.	Nov.	Dec.	Jan.	Feb.	Mar.	Apl.	May	Total.
0 to 1 ... ..	4	7	5	5	7	4	1	33
2 to 10 ... ..	2	6	8	5	10	3	3	37
11 to 20 ... ..	...	2	2	2	5	2	...	13
21 to 50 ... ..	...	...	...	2	2	1	...	5
51 to 100 ... ..	...	...	...	1	3	...	...	4
101 to 200 ... ..	...	...	...	1	...	1	...	2
201 to 300 ... ..	...	...	...	...	...	...	...	Nil.
Over 300 ... ..	...	...	...	...	1	...	...	1
Total ... ..	6	15	15	16	28	11	4	95

Details of causes of fires are as follows:—

Cause.	Nov.	Dec.	Jan.	Feb.	Mar.	Apl.	May.	Total.
Travellers ... ..	2	3	1	3	5	3	1	18
Hunters and Bee Robbers ... ..	1	2	5	4	10	1	...	23
Bush Workers ... ..	...	...	1	2	4	2	...	9
Settlers Burning off ... ..	...	1	...	3	3	2	...	9
Stock owners burning for								
Grazing ... ..	2	6	3	4	3	3	3	24
Campers ... ..	1	2	2	...	1	...	...	6
Government Locos. ... ..	...	1	1	...	1	...	...	3
Bush Locos. ... ..	...	...	2	...	...	...	...	2
Unknown ... ..	...	...	...	...	1	...	...	1
Total ... ..	6	15	15	16	28	11	4	95

The total expenditure for the season was £787 15s. 3d. details of which are given hereunder.

	£	s.	d.
1. Publicity Work ... ..		8	0
2. Manning Lookout Stations	165	17	1
3. Patrolling ... ..	29	19	2
4. Fire Fighting ... ..	274	15	10
5. Maintenance of Fire Breaks	27	16	9
6. Upkeep of Government			
Horses and Vehicles ... ..	50	15	11
7. Horse Allowances ... ..	111	5	8
8. Car Allowances, November			
to April ... ..	125	7	2
9. Preliminary Burning ... ..	1	9	8
	<u>£787</u>	<u>15</u>	<u>3</u>

Area protected ... ..	102,000 acres
Area burnt ... ..	1,741 do.
Percentage burnt ... ..	1.7 %
Total Cost ... ..	£787 15s. 3d.
Cost of protection per acre	1.85 pence.

A Cheney Spark Nullifier has been fitted during the past two seasons to a bush locomotive running through the protected area. No fires have occurred through sparks from the engine when fitted with the nullifier.

Several settlers were warned for breaches of the Bush Fires Act and Forests Act.

Two settlers were prosecuted after having been warned, both this and last season, for lighting fires on their holdings during the prohibited period.

Considerable assistance was in several instances rendered by settlers in fighting fires.

*Grazing Control.*—Grazing upon the State Forests in the Collie District was permitted under lease only, from the 1st July, 1921. Annual Forest Grazing leases have been granted for the exclusive right to graze cattle on specified areas, on which sylvicultural operations would not be carried out for some time. These grazing leases have been sold by auction.

Arrangements were made to allow, from the 1st August, 1921, the issue of permits to persons owning not more than two cows, to graze such cows on portions of the Collie State Forest, to be set apart from time to time for that purpose by the Forester in Charge.

These arrangements have not proved altogether satisfactory, and the question of a local fenced commonage is now pending.

(d) *Sylviculture and Forest Protection.*

(Expenditure, £178.)

Work in connection with the management and re-establishment of the prime forest country is gradually being extended. Expenditure in new centres during the last financial year was provided for under the above heading, and an amount of £178 was spent. The forests to be treated are first topographically surveyed, and the roads, tracks and natural features delineated on a plan. The areas are then sub-divided, chiefly according to roads and tracks, into compartments which are worked over in regular order. A Working Plan of management to cover operations is then drawn up. Owing to the necessity for the rigid protection of the newly established crops from fire for the first few years at least, relatively small and compact areas, where efficient fire control on simple lines may be practised for the present, are first receiving attention.

An experimental area of 2,000 acres has been established in prime Jarrah country at Dwellingup. Owing to the small area being worked over, and the difficulty of fire control in this locality, a Forest Workman is employed on the area in the summer, and on top disposal operations at Marrinup in the winter months. Regeneration cleaning was carried out over 160 acres. Owing to the very heavy cutting for trade purposes in the past, and the severe fires which resulted in the death of many of the remaining trees, the natural distribution of seed over the area will be very low, and probably insufficient for natural regeneration. For the purpose of comparison, sample plots on which Jarrah seed was artificially sown have been established; 24 acres were broadcast with Jarrah seed at the rate of two pounds per acre in May.

At Hester, in the Bridgetown District, an area of 12,000 acres was brought under Forest Management in the last financial year and a Working Plan to cover operations on the Working Circle was drawn up. An area of 200 acres was treated at a cost of 3s. 4d. per acre, and satisfactory regeneration has been secured over the area dealt with.

(e) *Education of Apprentices.* (£2,110).

The school term for boys in the third year of their apprenticeship (seven in number) opened on July 23rd and closed September 30th, 1923. The curriculum for the term included Sylviculture, Men-

suration, Valuation, and Protection. Two days each week were devoted to practical work and excursions. As part of their practical training, the boys carried out certain improvement work in the school grounds, including road-making. All apprentices obtained a satisfactory pass in the examination at the end of the school term. During the remainder of the year, apprentices were employed on effective forest work in various Districts. Six additional apprentices were engaged in January, 1924. The school term for these boys extended from January to May. The subjects studied included Physiology, Botany, Entomology, Elementary Surveying, Forest History and Value. Class work was supplemented by field work and training in various forms of signalling, including the use of the heliograph. Satisfactory results were obtained by all boys in the annual examination. At the close of the school term, a camp of junior apprentices, under the supervision of the Forestry Instructor, was started at Greenbushes. The work included the cleaning up of an area in the Jarrah forest for the establishment of sample plots for the measurement of the rate of growth. The boys gained valuable general experience in camp life and the use of tools, fitting them for distribution to Forest Districts.

(f) *Advertising, Publicity and Popular Education.*

Exhibits which have received very favourable criticism were forwarded to Wembley Park. Apart from a few "show" articles, the bulk of the exhibits were designed to demonstrate the value of timbers available for export for a variety of purposes. The following extract from an English trade journal, "The Cabinet Maker," of June 7th, 1924, is of interest:—

"The possibilities of Australian hardwoods for furniture making have not been fully explored, but it is only necessary to glance at the exhibits of Australian furniture to realise what scope there is for competent designers and manufacturers. . . . Banksia, a beautiful red-brown wood with a fine grain which polishes well, the figure in some cases being similar to that of English Oak. Jarrah and Curly Jarrah, although perhaps more famous as constructional timbers, take a fine polish and are excellent for furniture, the latter especially having a most attractive grain. The colour is full, rich and red, and is said to be preferred by many to Mahogany."

The Department was fortunate in that Head Forester D. McVicar, who acted as Secretary to the local Committee responsible for the exhibits, proceeded to England on long service leave prior to the opening of the Exhibition, and, consequently, was able to assist in the display of exhibits at Wembley Park.

Prior to the fire season a series of lectures in the South-West was delivered by Mr. McVicar, particular attention being paid to those districts where fire control and more intensive management are being practised. It is difficult to estimate the extent to which these lectures assist the work of the Department, but there is no doubt that the objects of the Department, and even the methods employed, are subject to considerable misrepresentation, which results in the sympathy of many persons who are in a position to cause considerable trouble being alienated.

(g) *Sandalwood Propagation.*

The fencing of an area of 210 acres sown with sandalwood nuts in June, 1923, was completed. The total area of jam country reserved in this locality, amounting to 430 acres, has now been sown.

220 acres sown in June, 1922, showed no signs of germination until April, 1923. Reports for July indicated a 90 per cent. germination, and by the following month plants were 1 in. to 6 in. high.

The following months were dry and only 50 per cent. of the seedlings were alive and healthy at the end of November, 1923. The heaviest percentage of deaths was among trees in the open spaces between large isolated jam trees. Those seedlings which had survived in the open were only 2 to 4 inches in height, while those receiving some protection from the direct rays of the sun averaged 10 inches in height, and were more robust in appearance. Satisfactory protection would appear to have been afforded by numerous jam trees, wattles, and York Gums mixed with jam and debris from dead fallen trees.

In the middle of April, 1924, it was reported that with the exception of the elevated ground to the north-east of the plantation, where all seedlings had died, about 35 to 40 per cent. of the seedlings still survived. The average height of these seedlings was 12 inches. It was noted that one vigorous seedling, 14 inches in height, which was dug up, had not at that time parasitised a host plant.

The value of protection afforded to seedlings through shade from trees standing and fallen was again noticed from this inspection. Damage from browsing by rabbits was negligible.

Approximately one ton of seed was sown, of which about 5 cwt. had the outer skin attached, on a further 210 acres in June, 1923. Towards the end of August a few of these latter seeds had germinated, the supposition being that the skin had retained the moisture necessary for germination.

In the middle of November, 1923, none of these seedlings could be found. This might, however, have been due to the prolific growth of grass which made their location difficult. Many of the seeds which had not germinated were dug up and examined, and it was estimated that 95 per cent. of them were sound.

In the middle of April, 1924, there was still no sign of germination. A number of the seeds were exhumed, and it was found that about 60 per cent. were sound.

Difficulty has been experienced in obtaining further areas of any considerable size suitable for the propagation of sandalwood, as most of the jam country on which it shows best development has been taken up for wheat farming. Many persons have advocated the establishment of plantations in areas of low rainfall where sandalwood occurs naturally and where the land cannot be used at present for other purposes. The uncertainty of favourable conditions for germination for a number of consecutive seasons and the probable slow rate of growth of sandalwood in such localities render very close investigation necessary before any expenditure is undertaken. An area of several thousand acres reported to be suitable for the purpose was located on a grazing lease at Cocanarup near Ravensthorpe. A preliminary inspection was made at the end of December, 1923, and a survey is now being carried out preparatory to the drawing up of a working plan.

Apart from the propagation of sandalwood, there is a need in the district for a reserve from which may be obtained a continuous supply of jam posts, as most of the jam country in the district has been cleared for agriculture. The protection of jam posts will naturally form an important part of any sandalwood plantation, so that the proposed reserve will serve a double purpose.

(h) *Top Disposal Operations.*

(Expenditure £4,623.)

Prior to 1st July 1923, top-disposal operations were carried out experimentally at East Kirrup and East Mornington. At the beginning of the financial year under review, these operations were extended to include all milling centres on Crown Lands, in the prime Jarrah belt. Karri country was not included, as the prime Karri country seldom carries many piles and poles among the mature trees, and no definite information can be obtained concerning the areas to be dedicated permanently as State Forests. The executive work in connection with the extension of these operations throughout the Jarrah belt during the financial year was carried out by Forester Weston, with Asst. Foresters Hebb, Giblett, and Valentine, each in charge of a division.

The various operations in connection with top-disposal are the preliminary burning of the area before felling, followed by the clearing of the debris from around the trees it is desired to protect, and finally the burning of the crowns of the fallen timber when sufficiently dry. The method to be adopted was dealt with in a paper read at the Foresters Conference, 17th July, 1923. Alterations and amendments were described in a circular letter No. 195.

Originally only the tops of freshly felled trees were disposed of, but when operations were extended, old fallen limbs and accumulations of debris were also cleaned up. Tree tops were at first burned as soon as possible after being felled, but it was found advisable to allow them to lie for a couple of months or more before burning, in order to dispose of them more effectively. If left for two months or longer, many of the smaller limbs are burnt up, and much of the bark burned off the larger limbs, which if the burning was done earlier, would remain to form a menace to future regrowth, and intensify any fire going through. Trees felled during the winter must, of course, lie till the following spring for satisfactory burning to be done.

As opportunity offered, the assistant officers cleared around abandoned bridges, culverts, etc., to protect them from fire. During the summer, however, they had been too busy with the top disposal burning, etc., to do much of this, but will have more time at their disposal during the winter months.

Operations were instituted at the following centres:—

Jarrahdale	Pindalup No. 2	Treesville
Dwellingup Rail- way Mill	East Mornington	Ellis Creek
Hoffman	East Kirrup	Holyoake
Greenbushes	Sussex Mill	Jarrahwood.
Nanga Brook	Wellington	
Whittakers' Mill	Marrinup	
	Wuraming	

Wellington has recently been closed down.

Millars' Timber and Trading Co. provided men to assist the Departmental employee at each of the following centres, to catch up back work, and they still have a man at the last three centres named—

Jarrahwood	East Mornington
Hoffman	Nanga Brook
East Kirrup	Jarrahdale.

During the first half of the year, 15,715 acres were dealt with at a cost of £1,991, or 2s. 6d. per acre. During the following quarter, 14,202 acres were treated at a cost of £1,246, or 1s. 9d. per acre. The area treated therefore for the first three quarters of the year, was 29,917 acres, at a cost of £3,237, or nearly 2s. 2d. per acre.



No burning was done during the last quarter, owing to winter conditions, though clearing around individual trees was continued. The costs include the wages paid by Millars' Timber and Trading Co. and all other expenses.

Work was at times duplicated, owing to the fact that fallers were unexpectedly sent back to take more trees out of areas already cut over. So far as the larger mills were concerned, this was usually due to the effect of the weather on the hauling conditions, or to a change of bush boss. Smaller mills, unfortunately, make rather a practice of cutting over their ground a number of times, making top disposal operations costly, and eventually ruining the resultant regrowth.

Where sleeper cutters were following the fallers, it was found at times that the crowns of trees felled for milling were burned before sleeper trees were felled, and it was found advisable to keep the cutters behind the men engaged on top disposal operations till the tops were disposed of, and clean up the sleeper trees later. This does not necessarily apply in the winter, the only thing to be guarded against in this season being the difficulty which would eventuate if sleeper cutters were to fell trees amongst tree tops which had been cleared, but which must necessarily remain unburned till the spring. The uncleared tops would then be difficult to locate and dispose of.

It was intended, as the work was organised and put on a uniform basis, to put it under the control of District Officers. At Mundaring and Collie this was done at the commencement, and the work at Jarrahdale was placed under the control of the Officer in Charge of the Metropolitan District during the second quarter. At the beginning of the fourth quarter, operations in the Bridgetown District were taken over by the District Officer, and extended to include Yornup.

The No. 1 Division (Dwellingup) was originally placed in charge of Assistant Forester Hebb, who was transferred to Mundaring and replaced by Assistant Forester Braithwaite. No. 2 Division was in charge of Assistant Forester Giblett, later transferred to Collie and replaced by Assistant Forester Rice. No. 3 Division was in charge of Assistant Forester Valentine, who was transferred to topographical survey work, and replaced by Assistant Forester Beggs.

As *débris* which existed unburnt on country cut over a year and more before operations were started has been cleaned up, it has been found possible to do the work with less men, and consequently the staff was considerably reduced.

In no instance did a fire lit by a Departmental employee get out of control or escape. Reports were circulated to the effect that fires escaped, but, on investigation, it was found that these fires had their origin from other sources.

(i) *Topographical Survey.*  
(Expenditure £297).

Topographical survey was commenced during the last quarter of the financial year, and an area of 50,000 acres was completed at a cost of a penny halfpenny per acre. This includes the survey of all the roads, tracks and prominently defined creeks and ridges. These features are used for sub-division and location as sectional and compartment boundaries and, in the case of roads and tracks, also for fire lines and access. Permanent water and possible

mill sites are also located. In centres where developmental work is in progress, plans are urgently required, as prime timber country has not been subdivided to any appreciable extent by the Lands Department. Costly theodolite work is not warranted for the maps required when dealing with internal division lines of forest country. Camps with an instrument man, and two field hands as the personnel, have been established. The instruments used are the plane table and compass, distances being measured with a five chain steel band.

Operations were placed under the control of Mr. Stanley, and were commenced at Hester, in the Bridgetown District, on March the 2nd, with one camp. Yornup and Wilgarrup areas were afterwards completed, making a total of 25,000 acres for the district. In May, this camp was transferred to Mundaring, where three camps were afterwards established during the financial year, and a total of 25,000 acres completed.

When the necessity arises from time to time to have external boundaries demarcated the work is carried out by a licensed surveyor, by arrangement with the Surveyor General.

(j) *General Housing.*

In the past, the Department has taken no steps to provide accommodation for its officers, apart from the building of a few two-roomed huts. With the inauguration of forest operations in various centres, it has become possible to decide on permanent headquarters, and expenditure in this connection is incurred under various Working Plans as the need arises.

In other places, however, such as townships in practically undeveloped country, where no housing accommodation is available, and which must remain the headquarters of a Forester for a number of years, houses of a standard design are being erected.

It is hoped that arrangements may be made with certain milling companies, whereby accommodation at the larger mills may be made available for officers of the Department whose time is chiefly employed in connection with the operations of such mills.

At Manjimup, a Workers' Homes Board Standard Cottage is being erected on a block reserved for the purpose, in proximity to Manjimup Townsite. Stables and a hut which is being used as an office, were previously standing on the site.

At Margaret River, a Workers' Homes Board Country Cottage type No. 3, is being erected on a reserve declared for the purpose in that centre. An office and stables and the necessary fencing are also being erected.

### 3.—AFFORESTATION.

(A).—*Nangara Experimental Area.*

Small experimental plots were established on the sandplain country in each of the years 1921, 1922, and 1923.

No further work was carried out during the financial year under review.

(B).—*Mundaring District.*

(i)—*Plantations.*

The work of planting the resumed farm lands on the Water Supply Catchment areas was continued.

(a) *Greystones Plantation.*—Planting was commenced in Sub-Compartment 65F in May, 54 acres being planted with *Pinus insignis*. A small area of



three acres was planted with *Pinus insignis* to complete Subcompartment 63A; 57 acres were planted at a cost of £2 5s. per acre.

(b.) *Mudros Plantation*.—Refilling was carried out in this plantation, two-year seedlings from the Greystones nursery being used.

(c.) *Byfield's Plantation*.—In July, 1923, three (3) acres in Subcompartment 74F were planted with *Pinus palustris*. The stock used were one-year seedlings, and were obtained from the Hamel Nursery; 18 acres in Subcompartment 740 were planted in the same month with *P. insignis*. These plantations were swept by a fire lighted inside the ploughed breaks in March, 1924. With the exception of an occasional seedling the *P. insignis* plantation was destroyed. About 60% of the *Pinus palustris*, however, although the needles were all killed, have since developed fresh shoots and survived. This subcompartment will be refilled this season.

*Summary*.—The area of effective plantations to the 30th of June, 1924, is 155 acres, details of which are as follows:—

Subcompartment.	Species.	Area.
Year 1921-1922.		
63A (Greystones) ...	<i>P. insignis</i> ...	50
Year 1922-1923.		
77A (Mudros) ...	<i>P. insignis</i> ...	28
77B (Mudros) ...	<i>P. pinaster</i> ...	17
770 (Mudros) ...	<i>P. pinaster</i> ...	4
74F (Byfield's) ...	<i>P. palustris</i> ...	3
Year 1923-1924.		
65F (Greystones) ...	<i>P. insignis</i> ...	50
63A (Greystones) ...	<i>P. insignis</i> ...	3
Total ...		155

#### (ii) Nurseries.

(a) *Weir Wall*.—Planting stock for current year's planting in Mundaring District was obtained from this source.

In July, 1923, 11b. of seed of *Pinus taeda*, Loblolly Pine, was sown in this nursery. In view of the necessity for sowing the seed for next year's planting stock, before planting for the current year commences a new nursery was established at headquarters at Mundaring Weir.

#### (b) Headquarters;

Costs—	£	s.	d.
Ploughing, digging and forming beds	29	2	10
Sowing	11	15	6

Quantities of seed sown, commencing May

10th—	
<i>Pinus insignis</i> ...	20lbs.
<i>Pinus muricata</i> ...	2 "
<i>Pinus caribæa</i> ...	2 "

#### (C).—Collie District.

##### (i) Planting.

The following planting was carried out during the past season:—

(a) On Proprietary Plantation No. 1 10 acres, which were sown in 1922 with *Pinus palustris* and failed, were planted with *Pinus insignis*, with a spacing of 7 feet x 7 feet. The total cost of planting was £21 3s. 4d., and the cost per acre £2 2s. 4d.

(b) On Proprietary Plantation No. 2 the smaller trees were felled and burnt, and the larger trees ring-barked, at a cost of £1 5s. per acre. 2 acres were planted with *Pinus pinaster*, with spacing of 5 feet x 5 feet; at a cost of £4 3s. 1d. per acre.

(c) On Mungallup plantation 10 acres, heavily timbered with Blackbutt and Marri, were cleared by felling and burning at a cost of £3 per acre. Three

and-a-half acres were planted with *Pinus insignis*, with spacing of 6 feet x 6 feet, at a cost of £2 17s. 8d. per acre. Six acres were planted with *Pinus insignis*, with spacing of 8 feet x 8 feet, at a cost of £1 12s. 6d. per acre. The costs for certain of the Collie plantations are low, owing to apprentices whose salaries are not charged to the work, being employed.

*Summary*.—The total area of effective plantations established to the 30th June, 1924, is 55½ acres, details of which are as follows:—

Plantation.	Species.	Area.	Total.
Year 1921-1922.			
No. 1 Proprietary ...	<i>P. pinaster</i> ...	7.5	12
Do. do.	<i>E. globulus</i> ...	3.75	
Do. do.	<i>E. goniocalyx</i> ...	.75	
Year 1922-1923.			
No. 1 Proprietary ...	<i>P. pinaster</i> ...	15	15
Year 1923-1924.			
No. 1 Proprietary ...	<i>P. pinaster</i> ...	2	28½
No. 2 Proprietary ...	<i>P. pinaster</i> ...	7	
No. 1 Proprietary ...	<i>P. insignis</i> ...	10	
Mungallup ...	<i>P. insignis</i> ...	9½	
Total ...			55½

#### (ii) Sowing.

Broadcast sowings were carried out as follows:—  
*Proprietary Plantation No. 1*.—Ten acres, which were ploughed and sown with seed of *Pinus pinaster* in 1922, and which partly failed, were resown with *P. pinaster* at the rate of 10lbs. of seed per acre, in May, 1924.

*Co-operative Leases, on Sand-plain areas*.—Fifty acres, on which the smaller trees had been felled and burnt, and the remainder ring-barked, were broadcasted with seed of *P. pinaster*, at the rate of 4lbs. per acre. Five acres on Compartment A4 were broadcasted with seed of *Eucalyptus globulus*, at a rate of 2lbs. per acre. Quarter acre on Compartment A4 was broadcasted with seed of *Eucalyptus robusta* at a rate of 1lb. per acre.

*Summary*.—Experimental areas, broadcast sown to 30th June, total 133 acres, details of which are as follows:—

Location.	Species.	Area.	Total.
Year 1920-1921.			
Co-operative Leases ...	<i>P. pinaster</i> ...	1	1
Year 1921-1922.			
No. 1 Proprietary ...	<i>P. pinaster</i> ...	15	17
Do. do.	<i>E. globulus</i> ...	2	
Year 1922-1923.			
No. 1 Proprietary ...	<i>P. pinaster</i> ...	60	60
Year 1923-1924.			
Co-operative Leases A3 and A4 ...	<i>P. pinaster</i> ...	50	55½
Co-operative Leases A4	<i>E. globulus</i> ...	5	
Co-operative Leases A4	<i>E. globulus</i> ...	½	
Total ...			133½

#### (iii) Nursery Work.

The following plants were raised during the year:—

*Pinus pinaster* ... 174,935

31,935 of the above *P. pinaster* were planted out, and 143,000 remain in the nursery beds for next season's planting.

*Pinus insignis* ... 45,350

17,860 of the above *P. insignis* were planted, and 27,490 have been held over for the next season's planting. These plants cost 10s. per 1,000 to raise.

Additional nursery beds were prepared in the arboretum nursery, between the 15th May and 17th June, and the following seed sown:—

<i>Pinus insignis</i>	....	....	10lbs.
<i>Pinus muricata</i>	....	....	2lbs.
<i>Pinus caribæa</i>	....	....	2lbs.
<i>Pinus pinaster</i>	....	....	40lbs.

(D) Ludlow Pine Plantation.

(i) *Plantations*.—Compartments 2, 3, and J, totalling 51 acres, were clear-felled in preparation for sowing at a cost of 30s. per acre, and afterwards burnt in April, 1924.

2,671 logs were loaded and trimmed at a cost of threepence each. 123 loads were carted to the Forest Mill, at a cost of £80, or, approximately, 13s. per load.

On the 23rd of May these compartments were sown broadcast with seed of *Pinus pinaster*, at the rate of 10lbs. per acre. 256lbs. of seed of *Acacia pycnantha* were collected in November, at a cost of £8, or 7½d. per lb.

An experimental plot of *Pinus palustris*, containing 580 plants, was established adjacent to the nursery, with soil conditions on the plot varying from dry to wet.

In Compartment U 12 acres of *Pinus pinaster*, 1919 sowing, were thinned at a cost of 5s. 6d. per acre.

(ii) *Nursery*.—46lbs. of seed of *Pinus pinaster* were sown with Planet Junior Drill between the 16th and 21st of May. The actual cost of sowing was £2 3s.; 30lbs. of this seed was new seed from France, and 16lbs. was from five-year old stocks. On the 2nd June the following seed was sown:—

1lb.— <i>Pinus halepensis</i> .
¾lb.— <i>Pinus caribæa</i> .
¾lb.— <i>Pinus muricata</i> .

(iii) *Fire control*.—50 acres of firebreaks, previously cultivated, were cultivated at a cost of £7 10s., or 3s. per acre; 42½ acres of firebreaks, previously ploughed, were ploughed at a cost of £25 10s., or 12s. per acre.

#### IV.—PROGRESS OF WORKING PLANS.

A Working Plan for an area of 12,000 acres at Hester, in the Bridgetown district, was completed. This plan received the approval of the Minister, and has been forwarded to the Governor in Council.

A Working Plan for portion of the Collie district, outside the boundary of the present Collie Coal Fields Working Circle, is in course of preparation, together with plans for further areas in the Bridgetown district. A planting plan to cover operations on the resumed farm lands, on the Water Supply Catchment areas, has been added to Working Plan No. 1, Mundaring District.

#### V.—SYLVICULTURAL NOTES.

On Jarrah much valuable information has been collected. Detailed silvicultural notes are in course of preparation, and will be published at an early date.

No radical changes have been made in connection with the silvicultural methods in use. Regeneration cleaning under the Group Selection System in cut-over Jarrah bush has been still further standardised, and the present practice is set out in detail in Circular No. 202 revised.

The main trouble in applying any systematic treatment to bush other than very heavily cut-over bush in proximity to comparatively large centres

of population is the difficulty of getting saw millers to work their bush out thoroughly. There are exceptions, of course, but the majority of saw millers, although they may agree with the principle, seldom cut any area out thoroughly the first or even second time they work through it. This is a practice which may ultimately have to be stopped by regulation.

Sylvicultural work makes evident the failings of the minimum girth method of restricting cutting to mature trees, but the organisation necessary to cope satisfactorily with the marking involved can only be built up gradually as the necessary staff is trained. In order to train men for tree marking on sound lines, it has been found necessary to employ them for some time on Regeneration Cleaning. This operation has of necessity been restricted to the opening up of blanks and dissociated entirely from the thinning of existing groups.

#### VI.—ARBORICULTURE.

41,800 trees were sold at cost price to persons residing outside the metropolitan area, returning a revenue of £427. The whole of these trees were raised at and distributed from Hamel. 4,100 trees were distributed free, and 26,683 trees sent out to arboreta and experimental plantations from that centre.

Little or no development has taken place in connection with the scheme for the establishment of arboreta outlined in last year's annual report. The Forest League have maintained their interest in questions of arboriculture and done good work by circularising municipal and road board authorities in and around the metropolitan area, with a view to arousing greater interest in street planting on sound lines, and the utilising for plantation purposes of numerous reserves controlled by such bodies and at present lying idle. Considerable interest has also been shown by the Education Department in proposals concerning school arboreta and endowment plantations, but it is evident that, if such interest is to be turned to practical account, one or more trained men must be available to advise municipal authorities, schools and other public bodies, concerning suitable species and general planting methods. Steps are being taken to obtain the services of a professionally trained officer, who will give special attention to this work.

#### VII.—FIRE CONTROL NOTES.

The primary control is furnished by the lookout stations. Fires are located by triangulation from two towers, or, in the case of a single tower, by means of a range-finder. The type of range-finder in use is the Barr and Stroud Fortress type.

Lookout stations have proved their value in this State. On rare occasions visibility has been so poor, owing to a dense pall of smoke arising from big fires outside the protected area, that it has been found necessary to send out patrols to aid in location. With the extension of the Fire Control scheme throughout the Jarrah bush, big fires will be largely prevented, and such circumstances as cited above should not occur.

The practice adopted is to rely on men engaged in the bush to carry out fire control in the ordinary course of their work, dealing with fires when called upon. Communication with these men is obtained through the fire towers by means of heliograph and telephone.

Telephonic communication is suitable for use between Lookout Stations, Headquarters, and Sub-stations, giving certain results and permitting the quick despatch of detailed instructions and reports. Owing to its permanent nature it is unsuitable for the transmission of information to men scattered throughout the bush. For this purpose communication by heliograph has given very satisfactory results, is easily workable, and can be used by new hands after a few hours' explanation and preliminary training. In a region of prominently defined ridges and hills, the heliograph is eminently suited for communication, but on flat country or in broad gullies the time taken to reach a signalling station makes the use of this instrument rather expensive.

Departmental employees are provided with horses to enable them to proceed to a fire quickly. The equipment issued to each man consists of saddle, bridle, water bag, water bottle, tomahawk, rake-head and carrier, fire map and fire report book. A heliograph is carried when required.

In previous years the method employed to extinguish fires was direct beating with bushes, and great success attended such efforts. In the season under review, however, the conditions were more difficult owing to the increased inflammability of the bush, through protection, the exceptionally dry summer, and the strong easterly winds experienced. During the first two months, November and December, the old method was employed, and direct beating found again successful. As the season progressed, however, the conditions became more difficult (owing to the increased inflammability of the bush), and many fires, after having been beaten down and swept in the old way, were found to break out again. Counter-firing from raked-tracks was therefore substituted for direct beating in nearly all cases.

It was found essential that new men should not be allowed to follow their own ideas of fire fighting. Simple as this work may appear, new men must be taught the methods of proved value, and once taught they must continue to follow out the instructions. Too much has been taken for granted, and too much latitude allowed the old hands because they had been on the job before and therefore should know the work. This attitude, however, failed where the men were not properly instructed in the first place, or where old fire-fighting methods became obsolete and new methods had to be evolved.

Although the cause of the majority of the fires was again deliberate incendiarism, the attitude of the settlers and local residents has been much more favourable, and they have rendered considerable assistance in fighting fires when called upon.

In order to reduce fire hazards, preliminary burning was carried out around all centres of bush working, including falling operations, firewood cutting, and stone and gravel carting. The non-occurrence of fires from these sources proved the value of these precautionary measures. A great temptation has been removed from certain members of the community, and much fire fighting work saved the employees of this Department.

Cheney Spark Nullifiers have been fitted to two bush locomotives running through protected areas, and have proved thoroughly satisfactory in eliminating sparks from engines as a cause of fires.

The greatest problem in fire control in this State lies in the big fires burning outside the boundary of the country under control. With only isolated areas under protection, an area may at any one time be threatened along the whole of any one boundary by outside fires which have attained serious proportions. The work of controlling such fires may call for the efforts of the whole of the staff, and thus seriously impair the efficiency of the organisation for dealing with fires inside the protected country.

## VIII.—RESEARCH AND INVESTIGATIONS.

### 1. WOOD TECHNOLOGY INVESTIGATION.

A number of problems relating to the better and more complete utilisation of local timbers have received attention. The work of the Department has done much to break down the prejudice against the use of local hardwoods for higher grade purposes, by demonstrating that many of the difficulties associated with the use of the timbers were not due to inherent faults, but to unsatisfactory and haphazard seasoning methods.

Kiln-drying investigations on modern lines were first commenced because it was felt that the kiln must ultimately play an important part in the development of satisfactory seasoning conditions for our hardwoods. It was soon realised that, while it is desirable to season timber by the kiln method, on account of the improved quality obtainable, it may not be economically possible for all purposes. Experimental work has been carried out with the following objectives:—

- (1) To show that the local timbers could be kiln-dried to a high-class product;
- (2) To establish the best conditions of drying.
- (3) To find the cheapest and best drying process for the West Australian hardwoods.

The first item was proved definitely very soon after the tests commenced, but, to obtain general acceptance of these results was no easy matter, on account of the prejudice against kiln-drying caused by the many unsuccessful attempts, on unscientific lines, of years gone by. A policy of frequent publication of up-to-date information relative to this question has resulted in a gradual improvement, and to-day although this educational work is still being continued, the relative merits of air and kiln seasoning are far more generally understood.

With regard to the second item, long and careful investigation has been necessary, and this work culminated during the present year with the development of the desired conditions. The closing down of the experimental dry kiln at Crawley last October signified the completion of the practical tests in this connection. From the results obtained from the many charges put through the kiln, the exact procedure necessary for any operator to kiln-dry our two main timbers—Jarrah and Karri—have been developed, and these have been embodied in Standard Drying Schedules. A provisional schedule has also been prepared for tuart. These schedules are applicable, with slight modification, to any type of modern dry-kiln installation. In the final kiln charge the 1in. Standard Jarrah Schedule was tested against actual conditions and was found to be accurate.

The third item of the activities is largely of a practical nature. The kiln-drying investigations were carried out with a Tiemann Water Spray kiln, which is acknowledgedly the best for experimental work. This type of kiln has been adopted commercially by one firm, but it is considered generally that the initial and operating cost is too high to offer a sufficiently attractive investment. It is necessary, therefore, to find out which type or types of kiln will carry out the drying at the cheapest rate, consistent with the production of properly seasoned material. Since the establishment of a timber seasoning kiln in this State considerable advance has been made in kiln practice in other parts of the world, and several new types of kilns have been evolved. Full particulars of one of these improved dry kilns have been forwarded by one firm and, in order to test its suitability for local needs, a number of test specimens of green Jarrah and Karri have been forwarded to the manufacturers in U.S.A. These specimens were sealed in moisture-proof coatings to insure their arrival in a green condition. Particulars of a large number of other types of kilns have been obtained, and, where further consideration has appeared advisable, more complete information has been secured. As a result of these inquiries, a number of specimens representative of a charge of Jarrah kiln-dried in Victoria were received, but in this case the standard of the dried product was disappointing.

The possibilities of combined air and kiln-seasoning are also being considered, but the lack of information relative to air-seasoning has hampered the seasoning activities of the Committee. In view of the great practical importance of this information, an air-seasoning test scheme has been developed and is now ready to be put into operation. Existing knowledge points to very considerable losses through inefficiencies in the present systems of air-seasoning, and, when it is remembered that the stacks of 1 inch timber for flooring alone in the State at the present time contain some 20 million super. feet of timber, the urgent necessity for investigation is evident.

The most important object of this project is, by correlation with information already available, to be in a position to state definitely the advantages in any particular case of air-seasoning, kiln-seasoning, or combined air and kiln-seasoning.

As one of the kiln charges contained both powellised and unpowellised Karri, advantage was taken of the fact to find out whether the powellising process resulted in any lessening of the beam strength of the subsequently seasoned timber. The results with the kiln-dried timber showed that, in cross-bending tests, the powellised Karri maintained the high standard of the untreated wood. In this connection, in order to make the test a complete one, specimens of powellised and unpowellised Karri from the same consignment were stacked for air-drying. When these pieces have seasoned, the test will be repeated for confirmation of the result with air-seasoned material. From the same test also will be obtained an indication of the effect of the kiln-drying upon the strength of the Karri.

A problem which received the attention of the Committee was the possibility of altering the present standards for house flooring. Before commencing any tests it was decided to call a conference of representatives of the sawmillers and the architects, with a view to determining whether such a test was likely to lead to practical results. The conference was duly held, and the opinions expressed indicated that it would not be advisable to carry out tests

at the present time. A similar policy is being pursued in connection with the advocacy of the use of Jarrah for fire-resisting doors. At present softwood is used for this purpose, but the few tests which have been carried out to date indicate that Jarrah holds a unique position, and is so far superior in fire-resisting properties that disabilities due to its greater weight are discounted. It is proposed to carry out a test to demonstrate the high resistance of Jarrah to fire, providing that an assurance can be obtained that, in the event of the test proving favourable, the use of Jarrah in future fire-proof door construction will be assured. The question involves far greater issues than the replacement of imported by local timber in one small detail of building construction, for it furnishes a very effective demonstration of an oft-neglected property of Jarrah, which should, for the many uses where the fire risk is worthy of consideration, materially enhance its value.

The prevention of end-splitting of boards, sleepers and poles; the possibilities of using mill waste for paving blocks, and tests on the prevention of white ant attack, are among the problems which have received attention, while information is at present being collected with a view to securing some more permanent and effective coating for Jarrah weatherboards and exposed floors than the linseed oil at present almost universally used.

The whole of this work has been carried out under the direction of the Wood Technology Investigation Committee, consisting of Professors H. E. Whitfeld and A. Tomlinson, and Mr. S. L. Kessell (Chairman), with Mr. S. A. Clarke as executive officer. The thanks of the Department are due to Professors Whitfeld and Tomlinson for their valuable assistance.

## 2. BOTANICAL INVESTIGATION.

The following localities were examined and collections made: Bending, Narrogin and adjoining districts, Mundijong, Jarrahdale, Karlgarin, Gingin, Albany, Denmark, Ravensthorpe, Hopetoun, Esperance and northwards to Salmon Gums. 266 specimens were collected, and, with few exceptions, identified and added to the Herbarium. Four new species have been found but not yet described, and a fifth will probably prove to be a new species of Eucalyptus. From collections forwarded, Mr. J. H. Maiden, I.S.O., F.R.S., F.L.S., has separated two types of Mallet, which have been exploited for their bark, raising each to the rank of species, with the names of *E. astrigens* and *E. Gardneri* respectively.

The following rare and imperfectly known Eucalypts were collected:—*E. Forrestiana*, Diels; *E. Dundasi*, Maiden; *E. diptera*, C. Andrews; *E. grossa*, F. v. M. and *E. sepulcralis*, F. v. M.

Two publications were compiled during the year; Botanical Notes on Kimberley Division of Western Australia (Bulletin 32) has been published, and a Key to the Eucalypts of Western Australia, with descriptive and botanical notes concerning all arborescent species known in 1924, is in the hands of the printer.

## 3. MARRI KINO INVESTIGATION.

In view of the fact that it has been fairly conclusively demonstrated that the kino which naturally exudes from Marri (*E. calophylla*) may be utilised for tanning purposes, investigations into the cause and origin of this product have been undertaken. Previous preliminary work had indicated the probability of kino formation being a pathological phenomenon. It is hoped that these investigations may

lead to a satisfactory tapping system being evolved. The chief difficulty in connection with tapping is the rapid congealing of the kino, which occurs when the liquid form is brought into contact with the atmosphere.

*Natural Reservoirs* in *E. calophylla* containing kino are of two distinct types. One consists of perpendicular fissures radiating from the centre of the tree. As much as ten gallons of liquid kino have been obtained from one series of shakes, but this yield is very exceptional. External indications of the presence of such reservoirs are sometimes seen in the form of fin-like projections on the bole of the tree. The kino drawn from such reservoirs is of inferior quality, having low specific gravity. The other type of reservoir is in the form of a cavity between wood and bark, and can generally be relied upon to give a satisfactory yield of pure liquid kino. It also differs from the radial type, in that it usually refills in from two to four weeks after tapping, when a further supply of kino may be drawn from it. The presence of these reservoirs may be detected usually by a slight swelling of the trunk.

#### *Tapping Season.*

It is interesting to note that kino-production during the period of the investigation appeared to be practically dormant from the beginning of March to the end of June. Further investigations are necessary to prove whether this periodicity of production is regular.

*Cause of Veins.*—It was first suggested that veins were due to the bacterial infection of undifferentiated tissue immediately beneath the cambial region. There is no doubt that veins arise in this region and this region only, but numerous infection experiments do not appear to give any definite confirmation to the theory, and for the time being it has been abandoned in favour of a purely chemical explanation. Mr. W. E. Campion, who is engaged on the investigation, favours an explanation based on carbon dioxide poisoning, due either to the exposure of the cambial region to the air by the boring of insects, or mechanical damage, or to an accumulation of an excess of CO<sub>2</sub> by respiratory processes in microscopic cavities caused by the rupture of delicate cells of the cambial regions owing to wind strain. It would appear that Aromadendrin or Aromadendric Acid (C<sub>29</sub>H<sub>26</sub>O<sub>12</sub>) Flavones and CO<sub>2</sub> are closely associated with the tannins of the Turbid Group of Eucalyptus kinos, but the true chemical relations of these compounds are obscure.

Acknowledgments are due to Mr. L. W. Phillips, M.Sc., of the Perth Technical School, for valuable assistance given in connection with chemical problems referred to above.

#### 4. ENTOMOLOGICAL INVESTIGATION.

Questions relating to Forest Entomology have received the attention of the Government Entomologist (Mr. L. J. Newman) and his assistant, Mr. J. Clark.

Interesting reports have been received at regular intervals, and the publication of the life-histories of several of the more important forest insects causing damage are promised for early publication. The *Jarrah Leaf Miner*, referred to in the last annual report, has been further investigated. It has been placed as a *Micro Lepidoptera* of the family *Tineidae*. Jarrah growing on sand-plain country along coastal

regions has again been severely attacked, and it is an open question whether the region of attack is determined by the nature of the soil or whether it is a pest spreading out from seaports. In view of the boring habits of the larvae immediately before pupating, the class of soil under trees may have considerable bearing on the spread of the pest. Other hosts appear to be *E. rudis* and an occasional *E. gomphocephala*. It is rather disconcerting to note that no satisfactory parasites which might check the ravages of this moth have been found. The only possible parasitic check reared, after numerous tests in breeding cages, are a few specimens of a calcid wasp.

The inspection of timber imported from Borneo and Java, in conformance with Commonwealth Quarantine Regulations, has shown the necessity for close supervision. A number of living specimens of particularly destructive varieties of timber borers have been discovered, and arrangements made for the infected timber to be destroyed.

#### IX.—LEGISLATION.

Regulations under the Forests Act, 1918, relating to the following subjects have been gazetted:—

*October 30th, 1923.*—Controlling the removal of Sandalwood from Crown Lands (see page 8).

*June 6th, 1924, and June 13th, 1924.*—Fixing rates of royalty payable on permits under Land Act Amendment Act, 1904, and leases and concessions for the period of their extension under Section 6 of the Forests Act (see page 7).

#### X.—ADMINISTRATION.

As one move in a general re-organisation of Government Offices, the Accounts Branch of the Department was transferred to a room occupied by portion of the Accounts Branch of the Lands Department and placed under the control of the Accountant, Lands Department. It remains to be seen whether the very slight economy effected will offset inconveniences and possible loss of efficiency which may result from the amalgamation.

A conference of senior officers was held in Perth on July 17th and 18th, 1923. The proceedings, at which 28 officers were present, were opened by the Minister for Forests (Hon. J. Scaddan, C.M.G.). The object of the conference was, primarily, to keep officers in charge of Districts informed concerning the progress of forest operations in all parts of the State. The agenda included the following papers:—

- “The Sylvicultural Treatment of Jarrah Forests,” by Mr. T. N. Stoate.
- “Top Disposal Operations,” by Forester L. Weston.
- “Fire Control Organisation and Fire Fighting Methods in the Mundaring District,” by Mr. G. E. Brockway.
- “The Control of Timber Inspection,” by Chief Timber Inspector H. McCoy.
- “Co-operation in Forest Work,” by Head Forester D. McVicar.

A vigorous discussion followed each paper and many useful ideas were brought forward. A copy of the proceedings was subsequently printed for general distribution among the staff.

*(a) Staff Changes.*

The Department lost a conscientious and able officer through the sudden death of Forester F. M. C. Schock. In addition to long and faithful service as forester in charge of several districts in the South-West, the late Forester Schock performed splendid pioneering work in connection with the botanical exploration of many little-visited regions.

*(b) Resignations and Transfers.*

Two members of the office staff and two members of the field staff resigned during the year.

*(c) Appointments.*

Towards the close of the financial year Messrs. G. J. Rodger, B.Sc. and A. C. Shedley, B. Sc., were appointed Divisional Forest officers and have since taken up duties with the Department.

Mr. H. R. Gray, B.A., Dip. For. was appointed in a temporary capacity in July, 1923, and has since carried on exacting duties connected with the control of the sandalwood industry; permanent appointment, with the status of Divisional Forest Officer, has been recommended.

Mr. A. Rule, M.A., B.Sc., was appointed Instructor in Forestry as from 1st July, 1923.

Assistant Foresters Sears and O'Sullivan were promoted to the rank of Forester and given charge of Nannup and Manjimup Districts respectively.

Four Assistant Foresters on the temporary staff were appointed to the permanent staff.

One apprentice completed his indenture and was promoted to Forest Guard.

Six apprentices signed indentures.

Five additions were made to Head Office staff.

Six Assistant Foresters were appointed and stationed in the South West. Three Assistant Foresters were appointed to cope with additional work entailed by the sandalwood regulations gazetted October 30th, 1923.

I desire to express my appreciation of the able manner in which the various officers have assisted me in carrying on the operations of the Department during the year. Expansion of activities, with the heavy increase of work involved, has been rendered possible by loyalty and enthusiasm of the whole staff.

S. L. KESSELL,  
Conservator of Forests.

Forests Department,  
Perth, September 25th, 1924.

*see page 7*

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## APPENDIX 1a.

General Statement of Revenue and Expenditure for the year ended 30th June, 1924.

Dr.		£ s. d.		£ s. d.		30th June, 1924 :		£ s. d.		Cr.		
30th June, 1924 :						30th June, 1924 :				£ s. d.		
To Log royalty from Permits granted under Section 11 of Land Act, 1898—						By Salaries of office and administrative Field Staff ...	7,257	0	8			
Jarrah ... ..	30,199	7	9			Wages temporary ... ..	3,112	10	0			
Karri ... ..	9,758	13	7			Travelling and forage allowances	2,587	19	2			
				39,958	1	4				12,957	9	10
„ Log royalty from Permits under the Forests Act, 1918—						„ Maintenance, State Nursery ...	49	8	0			
Jarrah ... ..	15,492	7	9			„ Workers' Compensation Fund ...	40	0	0			
Banksia ... ..	1	17	9			„ Sandalwood Commissions ...	687	19	8			
Sheoak ... ..	30	5	3			„ Postage and Telephones ...	126	19	9			
				15,524	10	9	„ Advertising ... ..	6	0			
„ Miscellaneous royalties—						„ Travelling allowances ... ..	138	0	5			
Piles and Poles ... ..	464	6	6			„ Library ... ..	36	14	4			
Hewn Sleepers (Forests Act)	3,046	7	5			„ Timber inspection ... ..	266	4	4			
Hewn Sleepers (Land Act)	1,159	8	11			„ Equipment ... ..	57	12	3			
Sandalwood ... ..	44,270	16	0			„ Freights and Fares ... ..	613	4	8			
Firewood ... ..	388	15	11			„ Stationery ... ..	522	15	2			
Beams ... ..	24	13	3			„ Sandalwood insurance ... ..	46	2	11			
Mining Timber ... ..	759	6	7			„ Miscellaneous ... ..	292	19	4			
Illegally cut timber ... ..	57	17	0							2,877	17	10
Hewn Timber (other than sleepers)	594	4	6			„ Expenditure from Forests Improvement and Reforestation Fund (Sec. 41) (2) Forests Act, 1918 ... ..				31,625	4	1
Posts ... ..	4	5	0			„ Expenditure from General Loan Fund, Pine planting ... ..				872	14	6
Sundries ... ..	83	5	9			„ Balance—Excess of revenue over total expenditure ... ..				78,920	2	7
				50,853	7	10						
„ Inspection Fees—												
Hewn sleepers, Crown Lands	1,250	7	5									
Sawn sleepers, Crown Lands	2,113	1	11									
Sawn timber, Crown Lands	278	6	11									
Hewn sleepers, private property	3,551	10	11									
Sawn sleepers, private property	2,021	19	6									
Sawn timber, private property	345	10	3									
Piles and Poles, private property	243	18	9									
Beams ... ..	20	19	9									
Re-inspected sleepers ... ..	9	10	8									
Miscellaneous ... ..	140	10	1									
				9,975	16	2						
„ Rents—												
Concessions ... ..	536	0	0									
Leases ... ..	6,500	0	0									
Tramways ... ..	799	15	3									
Sawmill sites ... ..	127	2	8									
Forest leases ... ..	69	7	10									
Cottages ... ..	82	18	0									
Land at Hamel ... ..	3	0	0									
				8,118	3	9						
„ Sales—												
Tuart ... ..	86	11	5									
Trees and seeds ... ..	427	7	10									
Firewood ... ..	8	7										
Branding hammers ... ..	76	12	6									
Publications ... ..	237	19	5									
Confiscated timber ... ..	1,103	3	6									
Miscellaneous ... ..	53	3	3									
				1,985	6	6						
„ Miscellaneous Revenue—												
Registration fees ... ..	400	0	2									
License fees ... ..	399	0	4									
Exemption fees ... ..	36	13	0									
Sundries ... ..	2	9	0									
				838	2	6						
				£127,253	8	10				£127,253	8	10



## APPENDIX 1b.

Forests Improvement and Reforestation Fund as at 30th June, 1924.

Section 41 (2) "Forests Act, 1918."

DR.	£	s.	d.	£	s.	d.	CR.	£	s.	d.
30th June, 1924:							1st July, 1923:			
To Working Plan No. 1 (Jarrah Belt)	4,415	10	8				By Balance brought forward	38,586	4	4
„ Working Plan No. 2 (Tuart Belt)	5,919	18	5				30th June, 1924:			
„ Working Plan No. 3 (Collie Mining Leases)	3,764	18	4				By three-fifths of net revenue in accordance with Forests Act, 1918	64,584	8	2
				14,100	7	5				
„ Sylvicultural operations	678	9	10							
„ Research and investigation	951	9	6							
„ Education of Apprentices	2,110	8	8							
„ Popular Education	78	7	7							
„ General equipment and incidentals	2,809	16	4							
„ Advertising and Publicity	1,085	7	7							
„ Sandalwood and Mallet Bark propagation	506	5	10							
„ Arboreta	17	13	0							
„ Salaries and Allowances	4,012	0	0							
„ Top disposal operations	4,625	7	6							
„ General housing	649	10	10							
				17,524	16	8				
„ Balance carried forward				71,545	8	5				
				£103,170	12	6		£103,170	12	6
							1st July, 1924:			
							By Balance brought forward	71,545	8	5

## APPENDIX No. 1c.

Statement of General Loan Fund for Year ended 30th June, 1924.

DR.	£	s.	d.	£	s.	d.	CR.	£	s.	d.
30th June, 1924.							30th June, 1924.			
To Amount provided by Treasury Department	872	14	6				By Sundries, General Equipment and tools			7 0 5
							„ Huts			4 4 6
							<i>Ludlow</i> —			
							Administration	306	4	0
							Incidentals	27	2	3
							Raising Plants	4	6	8
							Clearing for Planting	73	13	3
							Cost of Planting	95	8	10
							Maintaining Firebreaks	16	13	4
							Tending Plantations	26	1	8
							Utilisation	30	4	2
										579 14 2
							<i>Nangara</i> —			
							Establishment of Nursery	4	16	9
							Clearing for Planting	54	8	9
							Preparation of Soil	7	6	0
							Cost of Planting	56	12	5
										123 3 11
							<i>Bickley</i> —			
							Establishment of Nursery	28	19	0
							Raising Plants	110	3	11
							Clearing for Planting	8	6	8
							Cost of Planting	11	1	11
										158 11 6
										£872 14 6

## APPENDIX 1d.

Statement of Timber Inspected by the Inspection Branch of the Forests Department during the year ended 30th June, 1924.

Timber Inspected.	Inspection Fees.	
	Cubic Feet.	Amount.
Sawn sleepers	1,982,471	£ 4,135 1 5
Hewn sleepers	2,431,125	4,801 18 4
Sawn and Hewn timber	254,004	623 17 2
Re-inspected sleepers	9,156	9 10 8
Miscellaneous Timbers	...	140 10 1
Heart in Beams	Lineal Feet. 1,459	20 19 9
Piles and Poles	38,908	243 18 9
		9,975 16 2

## APPENDIX 1a.

## Revenue and Expenditure.

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

Year.	Revenue.	Expenditure.				
		Consolidated Revenue Fund.	General Loan Fund.	Reforestation Fund.	Mining Leases Fund.	Total.
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	...	49,556
£	1,117,697	241,886	38,972	138,896	1,203	420,957

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

It will be seen from the above statement that to the 30th June, 1924, the revenue exceeded the total expenditure by the sum of £694,070.

## APPENDIX 2a.

## Production of Mill Logs for Year ended 30th June, 1924.

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. 3,203,850	cub. ft. 1,121,348	cub. ft. 11,411,450	cub. ft. 3,994,008	cub. ft. 18,041,950	cub. ft. 6,314,683	cub. ft. 595,850	cub. ft. 208,548	cub. ft. 33,253,100	cub. ft. 11,638,587
Karri ... ..	...	...	...	...	5,699,100	1,538,757	192,650	52,016	5,891,750	1,590,773
Tuart ... ..	...	...	...	...	23,955	8,384	1,000	350	24,955	8,734
Wandoo ... ..	...	...	...	...	2,735	957	...	...	2,735	957
Blackbutt ... ..	...	...	...	...	...	...	1,700	595	1,700	595
Banksia... ..	...	...	104	36	...	...	...	...	104	36
Sheoak ... ..	...	...	...	...	5,771	2,020	11,050	3,868	16,821	5,888
Cypress Pine ... ..	...	...	...	...	30	11	...	...	30	11
Marri ... ..	...	...	...	...	...	...	300	105	300	105
Totals ... ..	3,203,850	1,121,348	11,411,554	3,994,044	23,773,541	7,864,812	802,550	265,482	39,191,495	13,245,686

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 Jarrah Sleepers obtained during Year ended 30th June, 1924.*

Locality.	Cubic Feet.
From Hewing Permits, Saw Mill Permits, and other Crown Lands, on which Royalty has been paid ... ..	723,100
From Private Property Leases and Concessions... ..	1,708,050
Total ... ..	2,431,150

NOTE.—The average recovery by the hewer is 20 per cent. of the log. The above total represents 12,155,750 cubic feet in the round.

## APPENDIX 2c.

*Total Production of Timber for Year ended 30th June, 1924.*

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

Appendix Reference.	In the Log.	In the square.
Total Mill Logs (Appendix 2a) ... ..	cubic feet. 39,191,495	cubic feet. 13,245,686
Total Hewn Timber (Appendix 2b) ... ..	12,155,750	2,431,150
Total, Appendices ... ..	51,347,245	15,676,836

## APPENDIX 2d.

*Sandalwood pulled during the Year ended 30th June, 1924.*

Locality.	Quantity in Tons.
From Crown Lands, South of 26th Parallel of South Latitude ... ..	8,535
From Crown Lands, North of 26th Parallel of South Latitude ... ..	172
From Private Property ... ..	2,418
Total ... ..	11,125

## APPENDIX 2e.

*Forest Produce obtained from Crown Lands during the Year ended 30th June, 1924.*

Description of Forest Produce.	Number.	Weight.	
		Tons.	Lbs.
Barks and Gums ... ..	...	5	...
Blackboy ... ..	...	120	...
Boronia Blossom ... ..	...	1	75
Charcoal ... ..	...	38	...
Fencing Posts and Rails ... ..	4,741	...	...
Total ... ..	4,741	164	75

## APPENDIX 2f.

Mining Timber and Firewood Consumed during Year ended 30th June, 1924.

Locality.	Wood Fuel Consumed.	Mining Timber Consumed.	
	tons.	tons.	cubic ft.
Greenbushes Mining Fields ... ..	1,770	...	...
Collie Coal Fields ... ..	...	...	147,923
Metropolitan Area ... ..	160,000	...	...
Golden Mile, Coolgardie, Norseman, Kunanalling, Golden Ridge, Kanowna, Mt. Monger, St. Ives, Carbine, and Gibraltar ... ..	262,000	8,864	...
Northern Goldfields, Broad Arrow, Bardoc, Ora Banda, Comet Vale, Menzies, Kookynie, Laverton, Mt. Morgans, and Mt. Magnet Districts ... ..	19,764	687	...
Southern Cross, Marvel Loch, Mt. Rankin, Burbridge, Westonia, Manxman, and Bullfinch Districts ... ..	1,500	1,876	...
Goldfields Water Supply Pumping Stations, Nos. 1 to 8 ... ..	19,098	...	...
Eastern Goldfields Districts (household) ... ..	29,700	...	...
Eastern Goldfields (bakers) ... ..	9,600	...	...
Eastern Goldfields Breweries, Cordial, Confectionery, and Soap Factories ... ..	1,000	...	...
Eastern Goldfields Tramways (locomotive wood) ... ..	18,000	...	...
Eastern Goldfields Electric Power and Light ... ..	43,000	...	...
Eastern Goldfields Producer Plants and Blacksmiths (as charcoal) ... ..	2,700	...	...
Sleepers for Goldfields Firewood Lines ... ..	Number *60,000	...	...
Total ... ..	†568,132	11,427	147,923

\* 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, etc., for Year ended 30th June, 1924.

Item and Country of Destination.	Quantity.	Value.	Item and Country of Destination.	Quantity.	Value.
<i>Timber, Dressed :—</i>	cubic feet.	£	<i>Sandalwood :—</i>	cwts.	£
Commonwealth of Australia ... ..	6,646	2,028	Hong Kong ... ..	173,676	213,988
United Kingdom ... ..	125	57	Straits Settlements ... ..	25,954	39,057
South African Union ... ..	3,583	430	China ... ..	75,071	83,415
Total ... ..	10,354	2,515	India ... ..	4,787	6,192
<i>Timber, Undressed :—</i>			Total ... ..	279,488	342,652
Commonwealth of Australia ... ..	4,702,910	574,279	<i>Tanning Barks :—</i>		
United Kingdom ... ..	1,145,442	138,198	Commonwealth of Australia ... ..	44,062	24,229
Fiji ... ..	9,617	1,154	Germany ... ..	9,005	4,983
Ceylon ... ..	268,492	30,773	Italy ... ..	787	394
New Zealand ... ..	910,683	109,191	Total ... ..	53,854	29,606
South African Union ... ..	1,972,350	253,121	<i>Essential Oils :—</i>		
India ... ..	1,049,025	125,865	Commonwealth of Australia ... ..	...	16,596
Egypt ... ..	445,000	55,666	United Kingdom ... ..	...	20,830
China ... ..	307,842	36,941	Japan ... ..	...	1,439
Mauritius ... ..	236,125	29,789	China ... ..	...	112
Belgium ... ..	53,633	7,157	United States of America ... ..	...	896
Holland ... ..	19,650	2,840	Total ... ..	...	39,873
Java ... ..	92	28	<i>Wood Manufactures, N.E.I. :—</i>		
Total ... ..	11,126,861	1,365,002	Commonwealth of Australia ... ..	...	5,225
<i>Wood Manufactures, N.E.I. :—</i>			United Kingdom ... ..	...	104
Commonwealth of Australia ... ..	...	5,225	United States of America ... ..	...	3
United Kingdom ... ..	...	104	Total ... ..	...	5,332
United States of America ... ..	...	3	<i>Barrels, Casks and Shooks, etc. :</i>		
Total ... ..	...	5,332	Commonwealth of Australia ... ..	...	*6,173
<i>Barrels, Casks and Shooks, etc. :</i>			Total, Timber Exported ... ..	...	£1,379,022
Commonwealth of Australia ... ..	...	*6,173	Total, Exports ... ..	...	£1,791,153
Total, Timber Exported ... ..	...	£1,379,022			

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

## APPENDIX 2h.

Timber Imports for the Year ended 30th June, 1924.

Item and Country of Origin.	Quantity.	Value.	Item and Country of Origin.	Quantity.	Value.
	cubic ft.	£			£
<i>Timber, Dressed, N.E.I. :—</i>			<i>Oars and Sculls :—</i>		
Commonwealth of Australia	1,054	393	Commonwealth of Australia	...	88
United States of America ...	38	7	United Kingdom ...	...	70
Norway ...	7,500	1,625	United States of America ...	...	159
Sweden ...	20,757	3,559	...	...	317
	29,349	5,584			
<i>Timber for making Boxes and Doors :—</i>			<i>Clothes Pegs :—</i>		
Commonwealth of Australia	...	899	Commonwealth of Australia	...	1,415
British Malaya ...	17,008	1,469	United States of America ...	...	503
Sweden ...	2,375	512	United Kingdom ...	...	10
Norway ...	1,733	348	...	...	1,928
Germany ...	67	61			
Java ...	258	33	<i>Doors :—</i>	No.	
Finland ...	1,475	231	Commonwealth of Australia	1,360	2,215
	22,916	3,551	United Kingdom ...	16	64
			United States of America ...	100	165
<i>New Zealand Pine :—</i>			Norway ...	14	25
New Zealand ...	7,269	1,878	...	1,490	2,469
<i>Logs not Sawn :—</i>					
Dutch Borneo ...	6,458	791	<i>All Wood Articles, N.E.I. :—</i>		
South African Union ...	42	16	Commonwealth of Australia	...	11,715
Do. ...	6,500	807	United Kingdom ...	...	2,430
	13,000	1,614	Canada ...	...	662
			British Malaya ...	...	8
<i>Timber, Undressed :—</i>			Holland ...	...	34
Commonwealth of Australia	96,895	29,987	Germany ...	...	101
United Kingdom ...	100	43	China ...	...	15
New Zealand ...	1,047	354	India ...	...	14
British Malaya ...	833	235	Czecho-Slovakia ...	...	43
Java ...	258	33	Austria ...	...	1
United States of America ...	208,798	39,099	France ...	...	86
Philippines ...	874	338	Italy ...	...	5
West Indies ...	932	294	Japan ...	...	128
Norway ...	1,097	253	Switzerland ...	...	1
Japan ...	1,760	1,058	Sweden ...	...	22
Siam ...	58	47	United States of America...	...	1,067
New Caledonia ...	430	190	...	...	16,332
Sweden ...	10,676	1,722			
	323,758	73,653	<b>Total, Timber Imports</b>	...	133,893
<i>Plywood and Veneer :—</i>					
Commonwealth States ...	...	6,318	<i>Tanning Extract :—</i>		
Japan ...	...	330	Commonwealth of Australia	...	265
United Kingdom ...	...	8	United Kingdom ...	...	22
...	...	6,656	South Africa ...	...	557
			Other Countries ...	...	75
<i>Architraves and Mouldings :—</i>			...	...	919
Commonwealth of Australia	...	1,985			
United Kingdom ...	...	1	<i>Tanning Barks :—</i>	cwts.	
...	...	1,986	Commonwealth of Australia	1,658	1,375
			South Africa ...	1,152	496
<i>Laths for Blinds :—</i>			...	2,810	1,871
Commonwealth of Australia	...	169			
United States of America ...	...	228	<i>Essential Oils :—</i>		
...	...	397	Commonwealth of Australia	...	752
			United Kingdom ...	...	215
<i>Picture and Room Mouldings :—</i>			France ...	...	420
Commonwealth of Australia	...	452	Spain ...	...	23
United Kingdom ...	...	251	Holland ...	...	21
United States of America ...	...	86	China... ..	...	17
Germany ...	...	89	Ceylon ...	...	679
...	...	878	Sicily ...	...	207
			Italy ...	...	556
<i>Spokes, Dressed :—</i>	No.		Japan ...	...	13
Commonwealth of Australia	46,617	1,539	Java ...	...	239
United States of America ...	8,572	230	British Malaya ...	...	8
...	55,189	1,769	India ...	...	5
			Germany ...	...	1
<i>Barrels, Casks, etc. :—</i>			Paraguay ...	...	5
Commonwealth of Australia	...	1,833	West Indies (St. Thomas) ...	...	5
United States of America....	...	11	Bulgaria ...	...	15
...	...	1,844	Russia ...	...	1
			United States of America ...	...	77
<i>Brushmaker's Woodware and Wood Tool Handles :—</i>			British East Africa ...	...	42
Commonwealth of Australia	...	1,936	...	...	3,301
United Kingdom ...	...	492	<b>Total, Imports ...</b>	...	£139,974
United States of America ...	...	10,365			
France ...	...	9			
Germany ...	...	22			
Norway ...	...	202			
Japan ...	...	1			
...	...	13,027			

APPENDIX 2i.

Summary of Timber Treated by both Forest and Town Sawmills exported from Western Australia during the Year ended 31st December, 1923.

	Jarrah.	Karri.	Other Timber.	Total.	Inter- state.	New Zealand.	United Kingdom.	British India.	Ceylon.	South Africa.	Mauri- tius.	Egypt.	Belgium.	Holland.	China.
	cub. ft.	cub. ft.	cub. ft.	cub. ft.	cub. ft.	cub. ft.	cub. ft.	cub. ft.	cub. ft.	cub. ft.	cub. ft.	cub. ft.	cub. ft.	cub. ft.	cub. ft.
Logs and Spars in the rough	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hewn beams and piles ...	4,100	...	...	4,100	...	...	...	...	...	...	...	...	4,100	...	...
Undressed (7 x 2½, and over)	4,043,300	69,350	5,900	4,118,550	2,383,200	262,100	698,500	42,450	94,500	470,450	88,250	7,500	63,850	2,350	5,400
Pickets and Palings ...	48,750	...	...	48,750	41,950	5,250	...	...	...	1,550	...	...	...	...	...
Flooring Boards ...	340,450	...	...	340,450	297,300	31,350	...	...	...	11,880	...	...	...	...	...
Paving Blocks ...	139,500	...	...	139,500	96,150	...	17,950	...	...	...	...	...	12,900	...	12,500
<i>Sleepers—</i>															
Sawn ...	2,291,850	...	...	2,291,850	135,400	159,450	78,000	432,250	123,750	871,450	14,850	385,500	...	...	91,200
Powellised ...	...	216,650	...	216,650	153,300	...	...	...	...	60,100	...	3,250	...	...	...
Hewn ...	*561,450	...	...	561,450	41,050	80,700	...	120,500	99,200	194,850	2,300	5,500	...	...	17,350
Telegraph Arms ...	25,000	...	...	25,000	...	...	...	...	...	...	...	...	...	...	...
Totals ...	7,454,400	286,000	5,900	7,746,300	3,173,350	538,850	794,450	595,200	317,450	1,610,200	105,400	401,750	80,850	2,350	126,450

\* Probably hewn on Concessions, etc., or shipped from Companies and Firms which own the Saw Mills.

APPENDIX 2j.

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	£ 98,650	9,605	£ 96,050	...	...
1837 ...	...	...	...	...	...	...	1883 ...	997,000	79,760	7,031	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 ...	354,300	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	78,419	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	6,843	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	453,461	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	280	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	...	...
1859 ...	67,250	6,051	1,278	17,259	...	...	1905 ...	8,709,500	689,943	5,521	38,817	154,087	...
1860 ...	54,800	4,932	1,687	16,360	...	...	1906 ...	8,830,700c	708,992	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	1,636	13,490	...	...	1911 ...	12,449,500c	986,341	6,907	65,508	33,470	...
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 ...	13,619,850c	1,089,481	6,266	47,589	47,377	...
1868 ...	8,000	638	3,256	26,045	...	...	1914 ...	6,279,750c	502,153	4,702	39,800	18,197	e 5
1869 ...	179,900	14,273	4,124	32,998	...	...	1915 ...	9,968,500c	808,392	8,375	78,926	6,127	e 381
1870 ...	157,200	17,551	6,112	48,890	...	...	1916 ...	5,432,100	441,991	6,271	61,381	10,208	e 1,102
1871 ...	218,500	15,304	3,366	26,926	...	...	1917 ...	3,890,650	310,893	7,230	72,669	18,959	e 2,060
1872 ...	37,000	2,590	3,942	31,536	...	...	1918 ...	3,436,250	274,141	6,504	51,834	16,886	e 3,995
1873 ...	68,150	4,771	6,292	62,916	...	...	1919 ...	4,135,750	344,119	8,998	117,072	18,875	e 3,987
1874 ...	345,600	24,192	7,057	70,572	...	...	1920 ...	5,065,300	487,666	14,355	240,579	22,121	e 3,704
1875 ...	342,350	23,965	6,646	66,465	...	...	1921 ...	9,816,250	1,162,735	10,839	131,801	23,073	e 10,107
1876 ...	219,050	23,743	6,577	65,772	...	...	1922 ...	8,309,750	1,063,475	3,990	54,769	13,323	e 6,878
1877 ...	336,150	36,979	4,247	31,851	...	...	1923 ...	7,911,310	1,009,831	7,705	103,958	21,161	e 20,075
1878 ...	580,900	63,902	4,675	35,064	...	...	1924 ...	11,126,861	1,379,022	13,974	342,652	29,607	e 39,873
1879 ...	627,250	69,742	4,667	35,001	...	...	Total	237,269,021	20,314,405	372,233	3,750,794	1,039,097	92,167
1880 ...	662,550	66,252	5,197	51,970	...	...							
1881 ...	792,750	79,277	7,716	77,165	...	...							

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 2k.

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

Year.	Timber, Wood- ware, etc. (not including furni- ture, bamboo, cane, etc.)	Tanning Materials.	Essential Oils:
	Value £	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	109,428	6,991	4,033
1923-24	133,893	2,790	3,301
Totals	3,283,251	71,283	94,798

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



## APPENDIX 3a.

Timber Concessions in Force as at the 30th June, 1924.

Concessionaire.	No.	Locality.	Term.	Original Area.	Present Area.
Millars' T. & T. Co., Ltd. ...	12/0	Cockburn Sound ...	1-1-1889 to 31-12-1901 1-1-1902 to 31-12-1915 1-1-1916 to 31-12-1929	250,000	250,000
Millars' T. & T. Co., Ltd. ...	12/1	Canning ...	1-1-1883 to 15-9-1925*	100,000	80,648
		Total ...		350,000	330,648

\* Term includes 8½ months extension granted under Section 6 (i) of Forests Act, 1918.

## APPENDIX 3b.

Timber Leases in Force as at the 30th June, 1924.

Lessee.	No.	District.	†Original Term, under Land Act, 1898.	Expiration of extension under Forests Act, 1918.*	Original Area.	Present Area.
Ainslie, James ...	145/113	Jarrahwood ...	1-1-1899 to 31-12-1923	30-6-1929	4,480	4,389
Ainslie, James ...	149/113	Jarrahwood ...	1-1-1899 to 31-12-1923	30-6-1929	4,480	4,092
Ainslie, James ...	150/113	Jarrahwood ...	1-1-1899 to 31-12-1923	30-6-1929	4,480	3,522
Millars' T. & T. Co., Ltd. ...	186/113	Yarloop ...	1-1-1899 to 31-12-1923	31-12-1927	27,000	16,012
Millars' T. & T. Co., Ltd. ...	227/113	Yarloop ...	1-1-1901 to 31-12-1925	31-12-1929	4,480	2,743
Millars' T. & T. Co., Ltd. ...	228/113	Yarloop ...	1-1-1901 to 31-12-1925	31-12-1929	4,480	4,130
Millars' T. & T. Co., Ltd. ...	229/113	Yarloop ...	1-1-1901 to 31-12-1925	31-12-1929	4,480	3,962
Millars' T. & T. Co., Ltd. ...	230/113	Yarloop ...	1-1-1901 to 31-12-1925	31-12-1929	4,480	4,480
Good, Frederick Daniel ...	244/113	Pinjarra ...	1-7-1899 to 30-6-1924	15-7-1929	17,280	13,259
Good, Frederick Daniel ...	257/113	Donnybrook ...	1-10-1899 to 30-9-1924	31-8-1929	33,280	23,876
Millars' T. & T. Co., Ltd. ...	261/113	Yarloop ...	1-10-1899 to 30-9-1924	15-10-1929	58,270	22,937
Wittenoom, Edward Horne ...	269/113	Yarloop ...	1-10-1899 to 30-9-1924	30-9-1928	5,000	2,080
Macmurtrie, William ...	288/113	Donnybrook ...	1-7-1900 to 30-6-1925	...	36,960	12,496
Ainslie, James ...	291/113	Donnybrook ...	1-1-1901 to 31-12-1924	30-11-1930	17,920	17,308
Millars' T. & T. Co., Ltd. ...	296/113	Yarloop ...	1-1-1900 to 31-12-1924	31-12-1928	11,520	3,928
Millars' T. & T. Co., Ltd. ...	297/113	Yarloop ...	1-1-1900 to 31-12-1924	31-12-1928	13,440	12,771
Ainslie, James ...	299/113	Pinjarra ...	1-7-1900 to 30-6-1925	15-7-1930	19,840	18,795
McNeil, Alexander James ...	309/113	Collie ...	1-4-1901 to 3-3-1925	...	21,310	793
Wittenoom, Edward Horne ...	322/113	Yarloop ...	1-4-1902 to 31-3-1927	15-4-1932	44,800	22,924
Wittenoom, Edward Horne ...	325/113	Yarloop ...	1-4-1902 to 31-3-1927	31-3-1931	1,280	1,197
Smith, Henry Teesdale ...	330/113	Pinjarra ...	1-7-1902 to 30-6-1927	30-11-1930	10,240	7,781
Smith, Henry Teesdale ...	331/113	Pinjarra ...	1-1-1903 to 31-12-1927	15-1-1933	9,600	7,111
		Total ...			359,100	214,686

\* On royalty basis. † On rental basis.

## APPENDIX 3c.

Saw Mill Permits in Force as at the 30th June, 1924 (Granted under Section II. of the Land Act Amendment Act, 1904).

Permit Holder.	Original No.	Regranted as No.	Locality.	Term.	Original Area.	Present Area.
Whittaker Bros. ...	1/11	76/11	North Dandalup ...	1-7-1915 to 30-6-1925	20,000	20,000
Bunning, Robert ...	8/11	93/11	Argyle ...	1-10-1916 to 30-6-1925	4,700	4,700
Bunning Bros., Ltd. ...	9/11	94/11	Collie ...	1-10-1916 to 30-6-1925	10,000	10,123
Preston Valley Sawmills, Ltd. ...	10/11	95/11	Noggerup ...	1-1-1917 to 31-12-1924	19,800	17,600
Swan Sawmills, Ltd. ...	14/11	92/11	Lowden ...	1-4-1917 to 30-6-1924	9,000	6,568
Bunning, Robert ...	15/11	96/11	Argyle ...	1-4-1917 to 30-6-1925	5,300	5,300
Bunning Bros., Ltd. ...	25/11	99/11	Collie ...	1-7-1918 to 30-6-1925	10,000	9,960
State Saw Mills ...	27/11	...	Near Dwellingup ...	1-1-1909 to 31-12-1924	20,001	18,868
Port & Co., Ltd. ...	34/11	...	Pindalup ...	1-7-1910 to 30-6-1931	28,510	30,450
Bunning Bros., Ltd. ...	36/11	97/11	Collie ...	1-4-1917 to 30-6-1925	10,000	9,986
Lewis, Francis Jas.; Reid, F. W. S. ...	37/11	inc. 51/11	West Collie ...	1-1-1910 to 31-12-1924	6,000	15,843
Wilgarrup Karri and Jarrah Co., Ltd. ...	42/11	...	Jarnadup ...	1-4-1910 to 31-3-1931	23,000	14,758
Buckingham Bros. ...	44/11	...	Muja ...	1-7-1910 to 30-6-1925	18,000	17,730
Commissioner of Railways ...	60/11	...	Yourdanning ...	1-4-1912 to 31-3-1925	38,000	38,000
The Kauri Timber Co., Ltd. ...	61/11	late 12/11	Nannup ...	1-1-1912 to 31-12-1924	58,000	55,405
Bunning, Robert ...	63/11	...	Argyle ...	Reinstatement	8,006	8,006
Trees, Ltd. ...	71/11	late 70/11	Collie ...	1-4-1914 to 31-12-1928	20,028	20,028
Minister for Works and Trading Concerns ...	73/11	pt. 67/11	Palgarup ...	1-1-1915 to 31-12-1924	7,000	7,000
Commissioner of Railways ...	78/11	...	Near Dwellingup ...	1-7-1915 to 30-6-1925	81,500	81,235
Minister for Works and Industries ...	79/11	...	Wuraming ...	1-10-1915 to 30-9-1925	38,690	36,596
Minister for Works and Industries ...	80/11	...	Bingham River ...	1-10-1915 to 30-9-1925	25,740	20,958
Minister for Works and Industries ...	81/11	...	Wuraming Hill ...	1-10-1915 to 30-9-1925	25,878	25,853
Minister for Works and Industries ...	82/11	...	Near Worsley ...	1-10-1915 to 30-9-1925	4,750	8,000
Buckingham Bros. ...	83/11	...	Near Bingham River ...	1-7-1916 to 30-6-1926	25,000	20,130
Whittaker Bros. ...	84/11	...	North Dandalup ...	1-1-1916 to 31-12-1925	15,350	15,430
Minister for Works and Industries ...	85/11	...	Pemberton ...	1-7-1916 to 30-6-1926	79,000	75,922
Minister for Works and Industries ...	86/11	...	Manjimup ...	1-7-1916 to 30-6-1926	143,000	141,477
Westralian Powell Wood Process, Ltd. ...	87/11	...	Donnelly River ...	1-1-1919 to 31-12-1929	15,000	15,000
Wandoo Timber Co., Ltd. ...	89/11	...	Muja ...	1-10-1916 to 31-5-1925	37,000	37,320
			Total ...		806,253	788,246

## APPENDIX 3d.

Sawmilling Permits in Force as at the 30th June, 1924 (Granted under Forests Act, 1918).

Permit Holder.	No.	Locality.	Term.		Area.
			From	To	
Australian Lumber Co., Ltd.	54	Inglehope	15-10-18	14-10-28	7,600
Adelaide Timber Co., Ltd.	57	Wilga	28-11-18	30-9-24	15,186
Swan Saw Mills, Ltd.	91	Quilergup	22-8-19	21-8-29	15,800
Australian Lumber Co., Ltd.	101	Wuraming	20-11-19	19-11-24	3,100
Buckingham Bros.	106	Muja	25-11-19	31-12-24	5,200
Collie Land & Timber Co., Ltd.	107	Bingham River	29-11-19	28-5-25	8,344
Nicholson, John	145	Barabup	1-9-21	31-8-25	10,000
Bunning Bros., Ltd.	147	Capel	27-8-20	30-6-25	600
Jenkins, W. M.	155	Balingup	1-12-20	30-11-24	1,104
Australian Lumber Co., Ltd.	157	Bowelling	1-11-20	31-10-25	35,500
Whistler Bros.	167	Bridgetown	1-1-21	31-12-24	1,500
Lewis & Reid, Ltd.	187	Glenlynn	1-3-21	28-2-25	3,480
Thompson, G. P.	188	Argyle	1-3-21	31-5-25	714
Steele, H.	198	Albany	1-3-21	28-2-25	2,050
Timber Corporation, Ltd.	216	Greenbushes	1-4-21	31-3-31	8,770
Miller, E. E.	243	Donnybrook	1-12-21	30-11-24	50
Lawson & Muschamp	281	Collie	1-5-22	30-9-24	3,732
State Saw Mills	310	Bridgetown	14-7-22	13-7-24	10,000
Connell, R. C.	311	Collie	1-8-22	31-7-24	1,350
Lewis & Reid, Ltd.	317	Collie	1-9-22	31-8-24	5,350
Bunning Bros., Ltd.	322	Lowden	1-11-22	31-10-24	657
Margaret River Timber Co., Ltd.	328	Margaret River	1-11-22	31-10-24	19,315
Timber Corporation, Ltd.	329	Greenbushes	1-11-22	31-10-24	13,700
State Saw Mills	367	Bridgetown	1-6-23	31-5-25	920
Adelaide Lumber Co., Ltd.	380	Benjinup	1-8-23	31-7-25	3,800
Timber Corporation, Ltd.	386	Palgarup	1-9-23	31-8-25	750
State Saw Mills	387	Pindalup	1-10-23	30-9-24	15,350
Livesey, S. C.	388	Kalgan	1-11-23	31-10-24	1,460
Australian Timber Co., Ltd.	390	Palgarup	1-11-23	31-10-24	8,870
Pilgrim, J. F.	403	Margaret River	22-10-23	21-10-24	15,065
Mitchell & Ryan	406	Hester	1-11-23	31-10-24	1,586
Hazel, E.	409	Margaret River	1-12-23	30-11-24	15,530
Hazel, E.	410	Margaret River	1-12-23	30-11-24	12,280
Edgley, A.	414	Redmond	1-12-23	30-11-24	650
Connell, W. R.	416	Blackwood River	1-1-24	31-12-24	176
Bunning Bros., Ltd.	417	Capel	1-12-23	30-11-24	1,350
Trees, Ltd.	422	Collie	7-12-23	31-12-24	3,750
Harper, A. J.	427	Marbellup	1-2-24	31-1-25	1,315
Lewis, J.	428	Shotts	12-1-24	11-1-25	2,713
Oma, H. W.	430	Mundaring	1-2-24	31-1-25	470
Pilgrim, J. F.	436	Mundaring	15-2-24	28-2-25	6,000
Lewis & Reid, Ltd.	438	Wilgarup	1-4-24	31-3-25	1,750
Millar's Timber & Trading Co., Ltd.	440	Marrinup	11-4-24	10-4-25	1,230
Adams, W. F.	441	Margaret River	1-5-24	30-4-25	1,700
Bunning Bros., Ltd.	451	Claymore	1-6-24	31-5-25	5,720
				Total ...	275,537

## APPENDIX 3e.

Hewing Permits in Force as at 30th June, 1924.

Permit Holder.	No.	Locality.	Term.		Area.
			From	To	
Johnson, A. M.	1	Noggerup	26-2-17	28-2-25	620
Carter, A.	191	Jarrahwood	1-3-21	31-12-24	1,000
Aubin, L.	326	Margaret River	1-11-22	31-10-24	671
Lawson, S. E.	330	Mungallup	1-11-22	31-12-24	95
Palmer, W. C.	360	Noggerup	1-4-23	31-3-25	2,028
Sloan, H.	366	Muja	15-5-23	31-12-24	1,000
Dore, C. E.	372	Kirup	1-7-23	31-12-24	3,889
Tidy, R.	376	Wilgarup	1-7-23	31-12-24	2,160
Sartori, G. & J.	378	Nannup	1-7-23	31-12-24	1,928
Department of Works & Labour	379	Margaret River	18-7-23	17-1-25	9,940
Jackson & Rogers, Ltd.	391	Margaret River	22-10-23	21-10-24	2,790
Jackson & Rogers, Ltd.	392	Margaret River	22-10-23	21-10-24	8,970
Smith, J. P.	394	Margaret River	22-10-23	21-10-24	3,620
Smith, J. P.	395	Margaret River	22-10-23	21-10-24	8,830
Bailey, W. J.	396	Margaret River	22-10-23	21-10-24	2,400
Bailey, W. J.	397	Margaret River	22-10-23	21-10-24	3,865
Bailey, W. J.	398	Margaret River	22-10-23	21-10-24	4,680
Pilgrim, J. F.	399	Margaret River	22-10-23	21-10-24	7,240
Pilgrim, J. F.	400	Margaret River	22-10-23	21-10-24	4,455
Pilgrim, J. F.	401	Margaret River	22-10-23	21-10-24	4,770
Davies, J.	402	Margaret River	22-10-23	21-10-24	2,590
Jackson & Rogers, Ltd.	404	Margaret River	22-10-23	21-10-24	14,380
Bonola, T. D.	405	Margaret River	22-10-23	21-10-24	1,136
Smith, J. P.	408	Margaret River	1-12-23	30-11-24	5,165
Jackson & Rogers, Ltd.	411	Margaret River	1-12-23	30-11-24	17,000
Jackson & Rogers, Ltd.	412	Margaret River	1-12-23	30-11-24	3,100
Jackson & Rogers, Ltd.	413	Margaret River	1-12-23	30-11-24	8,300
Australian Lumber Co., Ltd.	418	Balbarup	1-12-23	30-11-24	125
Dunn & Green	435	Allanson	6-3-24	30-6-24	250
				Total ...	126,997

## APPENDIX 3f.

Firewood Permits in Force as at 30th June, 1924.

Permit Holder.	No.	Locality.	Term.		Area.
			From.	To.	
Morris, C. G.	66	Albany ...	30-4-19	29-4-25	acres: 340
Georgel, M. ...	130	Balacata ...	17-5-20	16-5-25	1,180
McMullen, W.	185	Warbrook	1-3-21	28-2-25	575
Young, J.	203	Helena River	2-4-21	...	13,400
Hunter, C. H.	205	Clackline	1-5-21	30-4-25	590
Goodall & Pepper	230	Marbellup	1-10-21	30-9-24	600
Groot, A.	244	Balacata ...	1-12-21	30-11-24	1,180
Dean, G.	264	Nannup ...	1-4-22	31-3-25	945
Colquhoun & Farrell	266	Sawyers' Valley	1-4-22	30-6-24	205
Trew, W.	267	Sawyers' Valley	1-4-22	30-6-24	570
Weston, F. J.	268	Pickering Brook	10-3-22	30-6-24	1,217
Saunders, J. J.	269	Pickering Brook	10-3-22	30-6-24	4,000
Hales & Cadwallader	270	Pickering Brook	10-3-22	30-6-24	1,737
Hadley, S. A. D.	274	Ludlow ...	1-4-22	31-3-25	1,200
Goodall & Pepper	285	Marbellup	1-4-22	31-3-25	950
Houston, W. G.	299	Chidlow's	1-5-22	30-6-24	1,095
Martyr, W.	306	Chidlow's	1-7-22	30-6-24	876
McCracken, G. T.	314	Mundaring	21-8-22	31-12-24	612
Murphy, O. F.	321	Jandakot	1-1-23	31-12-24	55
Trew, S. G.	339	Sawyers' Valley	1-1-23	30-6-24	600
Nicholls, J. H.	340	Karragullen	1-1-23	30-6-24	1,500
Weston, F. J.	341	Pickering Brook	1-1-23	30-6-24	4,000
Eddy, J. C.	342	Pickering Brook	1-1-23	30-6-24	394
Ferguson, J. H.	368	Woorloo	18-5-23	17-11-24	3,500
Gordon, A. A.	385	Byford ...	1-9-23	31-8-24	1,347
Gableish, A. ...	389	Albany ...	1-1-23	31-10-24	1,100
Oma, V. C. ...	424	Albany ...	1-1-24	31-12-24	1,894
Bianthre, R.	425	Kalamunda	1-1-24	31-12-24	906
Walliston Orchardists, Ltd.	426	Walliston	1-1-24	31-12-24	205
Sweetman, F. J.	431	North of Perth	1-1-24	31-12-24	45,000
Shanlum, A. V.	434	Albany ...	1-3-24	28-2-25	1,000
Ramsay, W. R.	439	Kalamunda	10-4-24	31-3-25	395
Weston, G. P.	443	Mundaring	10-4-24	30-6-24	1,418
Keenan, P. ...	444	Mundaring	1-5-24	30-4-25	1,130
Barrett, T. H.	447	Pindlup	16-4-24	30-6-24	3,340
Walton & Wilkinson	448	Mount Helena	15-5-24	30-6-24	280
Jones, W. ...	450	Mundaring	15-5-24	14-5-25	790
Ennor, G. ...	452	Wundowie	1-6-24	31-5-25	1,470
Hayman, W.	453	Baker's Hill	1-6-24	...	570
				Total ...	102,166

## APPENDIX 3g.

Miscellaneous Permits in Force as at 30th June, 1924.

Permit Holder.	No.	Locality.	Term.		Area.
			From.	To.	
Rowley Forest Products Co., Ltd.	1A	All waste Crown Lands	1-3-15	28-2-25	acres: ...
Hall, W. R. ...	104	Kalgoorlie	1-10-19	31-7-29	4,400,000
Braddock, C. L.	179	North-West Areas	1-1-21	31-12-25	*70,000
Lawson, Bros.	312	Collie	1-7-22	31-12-24	16,420
Magregor, A. L. G.	357	Darhan ...	1-4-23	31-3-25	12,000
Mollison, G. J.	385	Wanneroo.	1-5-23	30-4-25	492
Stewart, T. A.	429	Harrismuth	1-2-24	31-1-25	5,103
Magregor, A. L. G.	442	Wonerup and Ludlow	1-4-24	31-3-29	6,091
Farrell, J. ...	445	Mundaring	1-5-24	31-7-24	1,515
Trew, S. G.	446	Mundaring	1-5-24	31-10-24	1,031
Ballard, B. ...	449	Mundijong	13-5-24	14-11-24	230
				Total ...	4,442,882

\* Square miles, not included in Total.

## APPENDIX 3h.

Summary of Appendices 3a to 3g.

Number in Force.	Class of Holding.	Area.	
		acres.	sq. miles.
2	Timber Concessions (Appendix 3d) ...	330,648	...
22	Timber Leases (Appendix 3b) ...	214,686	...
29	Sawmill Permits (Appendix 3e) ...	788,246	...
45	Sawmilling Permits (Appendix 3d) ...	275,537	...
29	Hewing Permits (Appendix 3e) ...	136,997	...
39	Riverwood Permits (Appendix 3f) ...	102,166	...
11	Miscellaneous Permits (Appendix 3g) ...	*1,442,882	...
	Total ...	6,281,162	...

\* Not including 70,000 square miles (Permit No. 179).

APPENDIX 4.

LIST OF SAW MILLS.

Name of Sawmill Owner, and District.	Date of erection of Mill.	Locality, Permit No., Lease or Private Property.	Type of Mill.	Horse-power of Mill.	Average distance from Stump to Landing.	Average distance from landing to Mill.	Distance from mill to Main Line Siding.	Distance from Siding to nearest Port.	Output in loads of squared timber per day.	Percentage of recovery.	Rate per ton on sawn timber to Port of shipment.	Remarks.
					M. Ch.	M. Ch.	M. Ch.	M. Ch.			s. d.	
* ALBANY DISTRICT.												
Brooks, W. D., Tennessee ...	Oct., 1922	P.P., Loc. 1191 ...	Circular saw ...	8	0 30 to mill	...	1 0	21 0	8 doz. fruit cases	40	8 4	Cuts Karri and Jarrah fruit cases. Operates on P.P. Not working.
Douglas, J. R., Denmark ...	1912	P.P., Town Lot 302	do. ...	14	0 40 to mill	...	0 40	37 0	1	50	10 4	Cuts Karri and Banksia for general wheelwright work. Works intermittently from P.P.
Douglas Bros., Kalgan ...	July, 1921	P.P., Loc. 1498 ...	do. ...	25	0 40 to mill	...	13 0	At Albany	1	40	12 6	Cut Sheoak and Jarrah for fruit cases. Not working.
Drage, J. E., Mt. Barker ...	1913	P.P., Loc. 79 ...	do. ...	10	0 40 to mill	...	17 0	31 0	8 doz. fruit cases	40	10 7	Cuts Jarrah for fruit cases. Works intermittently on P.P.
Edgley, A., Redmond ...	1921	P.P., Loc. 2698 ...	do. ...	12	0 30 to mill	...	7 0	20 0	7 doz. fruit cases	35	8 2	Cuts Jarrah fruit cases. Works intermittently from Permit 414.
Groth & Adams, Marbellup ...	Feb., 1921	P.P., Loc. 723 ...	do. ...	6	1 40	...	0 15	12 0	1	40	6 10	Cut Sheoak for fruit cases and barrel staves. Closed down Sept., 1923.
Harper, A. J., Marbellup ...	May, 1924	Res. 6926; S.M.S. 37/33	Circular saw ...	12	1 0 to mill	...	0 6	12 0	1	50	6 10	Cuts Jarrah and Sheoak for barrel staves, furniture, fruit cases and firewood from Permit 427. Works intermittently.
Keith, A. E., Hay River ...	1910	P.P., Loc. 2685 ...	do. ...	5	1 0 to mill	...	3 0	29 0	1	50	9 4	Cuts Jarrah fruit cases. Mill practically closed.
Livesey, S. C., Napier River ...	Sept., 1923	P.P. Loc. 1999 ...	do. ...	12	0 60 to mill	...	18 0	At Albany	1/2	40	18 0	Cuts Jarrah fruit cases for own use. Works intermittently.
Saw, C., Bow River ...	1919	P.P., Loc. 723 ...	do. ...	5.7	0 40 to mill	...	26 0	37 0	1	50	10 4	Cuts Karri, River Banksia, Red and Yellow Tingle Tingle. Works intermittently from P.P.
Steele, H., Albany ...	May, 1921	P.P., Town Lot 43	Circular and band saws	6	5 40 to mill	...	1 0	At Albany	1	50	3 0	Cutting Sheoak for fruit cases, staves, and firewood. Operating Permit 198. Works intermittently.
Steicke, Bros., Porongorups ...	1913	P.P., Loc. 1855 ...	Circular saw ...	18	0 40 to mill	...	17 0	31 0	10 doz. fruit cases	40	10 7	Cuts Karri mainly and Jarrah fruit cases. Has worked intermittently only since 1919 on P.P.
BRIDGETOWN DISTRICT.												
Connell, W. R., Bridgetown ...	1922	P.P., Loc. 663 ...	do. ...	8	1 40 to mill	...	2 0	60 0	1	70	...	Cutting Jarrah fruit cases, pickets, etc., for own use and sale, from P.P.
Holdsworth, W., Hester ...	1920	P.P., Loc. 1077 ...	do. ...	6	...	...	0 5	60 0	...	75	...	Cutting Jarrah and Karri fruit cases from waste ends from various mills.
Jenkins, W. M., Balingup ...	April, 1922	Permit No. 155, S.M.S., 33/33	do. ...	10	1 20	...	3 0	45 0	4	40	...	Cutting Jarrah sleepers and scantling. Operating Permit 155.
Lewis & Reid, Ltd., Yornup ...	Nov., 1922	Permit No. 187, S.M.S., 18/33	Twin and circular saws	20	1 40	0 40	2 40	78 0	10	33	25 0	Cutting Jarrah. Operating Permit 187.

Machin, J. H., Glentullock ...	1918	P.P., Loc. 620 ...	do. ...	6	...	...	8 0	75 0	$\frac{1}{2}$	...	...	Cutting Jarrah fruit cases, etc., for own use from P.P.
Mitchell & Ryan, Hester ...	July, 1919	P.P., Loc. 5290 ...	do. ...	16	1 40 to mill	...	3 0	...	$1\frac{1}{2}$	34	...	Cutting Jarrah fruit cases, scantling, and sleepers. Operating Permit 79.
Stjepivich, W. H., Bridgetown ...	1921	P.P., Loc. 2387 ...	do. ...	12	1 0 to mill	...	5 0	60 0	1	40	...	Cutting Jarrah fruit cases, scantling, and sleepers from P.P.
Timber Corporation, Ltd., Greenbushes	1898	P.P., Loc. 890 ...	Vertical and circular saws	50	1 0	12 0	2 0	59 0	10	42	12 2	Cutting all classes Jarrah. Operating Permit Nos. 216 and 239.
Whistler Bros., Dinninup ...	May, 1921	P.P., Nelson Loc. 1356	Circular saw ...	32	2 0	...	6 0	79 0	8	48.52	15 2	Cutting Jarrah and Wandoo sleepers, scantling, etc. Operating P.P. and Permit No. 167.
COLLIE DISTRICT.												
Amalgamated Collieries of W.A., Ltd., Collie	1920	Coal Mining Lease 245	do. ...	60	1 0	Nil	0 40	41 0	3	60	10 10	Cutting Jarrah for mining purposes.
Buckingham Bros., Buckingham's Siding	1912	Permit 44/11, S.M.S. 30/33	Twin and circular saw	26	1 52	8 0	0 60	53 0	14	49	12 5	Cutting Jarrah sleepers and building timbers from Permits 44/11, 83/11, and 106.
Bunning Bros., Ltd., Lyall's Mill	1903	P.P., Lease 5747/56	do. ...	200	1 0	9 0	6 0	49 0	30	50	13 1	Cutting Jarrah in all sizes. Operating permits 94/11, 95/11, 97/11, and 99/11.
Collie Land and Timber Co., Ltd., Collie	Oct., 1921	Permit 107, S.M.S. 8/33	Circular saw ...	14	2 40 to mill	...	9 0	52 0	8	45	...	Cuts Jarrah. Operates Permit 107.
Connell, R. C., Collie ...	Oct., 1921	P.P., Loc. 798 ...	do. ...	12	1 40 to mill	...	3 0	41 0	4	36	12 10	Cuts Jarrah for general use. Operates Permit 311.
Lawson & Muschamp, Collie ...	1923	Permit 281, S.M.S. 23/33	do. ...	14	0 60	...	2 40	41 0	5	55	12 1	Cutting Jarrah sleepers and scantling from Permit 281.
Lewis & Reid, Ltd., Allanson ...	1917	S.M.S. 6/33 ...	Twin and circular saws	30	2 40	2 40	0 5	37 0	4	33	10 4	Cuts Jarrah for general use. Mill not working. Operates on Permit 37/11.
Lewis & Reid, Ltd., Reid's No. 2 Mill	1915	S.M.P. 37/11, S.M.S. 15/33	Circular saw ...	60	1 0	3 0	6 60	36 0	20	40	...	Cutting Jarrah. Operates on Permits 317 and 37/11.
Palmer, R., Collie ...	1919	Collie Town Lot 529	Circular saw ...	24	2 0 to mill	...	0 20	41 0	2	50	...	Cut Jarrah for local use from P.P. Mill. Closed at present.
Snell, A., Harvey ...	1920	P.P., Loc. 58 ...	do. ...	10	2 60 to mill	...	20 0	29 0	3	50	...	Cut Jarrah fruit cases mainly. Not working at present.
State Saw Mills, No. 6, Worsley	April, 1921	S.M.P. 82/11, S.M.S. 29/33	Twin and circular saws	50	1 0 to mill	...	5 0	28 0	8	48	...	Cutting Jarrah sleepers and scantling. Operating on Permit 82/11.
Wandoo Timber Co., Ltd., Muja	1915	P.P., Loc. 1676 ...	do. ...	35	0 60	4 0	0 60	51 0	12.18	47	12 4	Cutting Jarrah for local use and export. Operating Permit 89/11.
Westralia Timber and Trading Co., Ltd., Bowelling	Feb., 1921	Permit 157, S.M.S. 16/33	do. ...	35	1 40	...	0 25	64 0	$7\frac{1}{2}$	47	13 5	Cuts Jarrah for export and local use. Operates Permit 157. Not working during 1922-23.
Westralia Timber and Trading Co., Ltd., Jardup	1921	P.P., Loc. 50 ...	do. ...	14	2 0 to mill	...	5 0	29 0	6	45	9 4	Cuts Jarrah and Blackbutt. Operates on private property. Not working at present.
Westralia Timber and Trading Co., Ltd., Harnett's Siding	1924	P.P. Loc. 51 ...	Twin saws ...	25	1 40 to mill	...	1 10	25 0	13	50	9 0	

APPENDIX 4—continued.

Name of Sawmill Owner, and District.	Date of erection of Mill.	Locality, Permit No., Lease or Private Property.	Type of Mill.	Horse-power of Mill.	Average distance from Stump to Landing.	Average distance from Landing to Mill.	Distance from Mill to Main Line Siding.	Distance from Siding to nearest Port.	Output in loads of squared timber per day.	Percentage of recovery.	Rate per ton on Sawn Timber to Port of shipment.		Remarks.
					M. Ch.	M. Ch.	M. Ch.	M. Ch.			s. d.		
DONNYBROOK DISTRICT.													
Adelaide Timber Co., Ltd., Wilga	1909	Permit 57, S.M.S. 14/33	Circular saw ...	42	1 20	3 0	Nil	58 0	7	.45	12	10	Cutting Jarrah sleepers, building, and dressed timber, etc. Operating Permits 57 and 380.
Bendall, W., Donnybrook ...	Dec., 1920	P.P., Loc. 989 ...	do. ...	10	...	0 40	1 60	21 0	1	70	8	4	Cutting Jarrah fruit cases only, for sale and own use, from P.P.
Bowman, J. H., Charlie's Creek...	1916	P.P., Loc. 109 ...	Twin and circular saws	12	1 0	...	...	...	100 cases	...	No export		Cutting Jarrah and Karri fruit cases for own use. Works only a few weeks during year.
Bunning Bros., Ltd., Argyle ...	...	P.P., Loc. 2170 ...	do. ...	60	1 0	10 0	15 0	21 0	15	45	8	4	Cutting Jarrah for local use and export. Operating S.M.P. 93/11, 96/11, and 147.
Davern, J. T., Lowden ...	1919	P.P., Loc. 89 ...	Circular saw ...	10	...	1 0	0 20	35 0	2½	75	10	1	Cutting Jarrah fruit cases and scantling for own use only from P.P.
Farley, D. V. C., Goodwood ...	1-9-19	Permit 98, P.P. Loc. 1003	do. ...	14	0 40	...	10 0	16 0	10 doz. dump fruit cases	70	8	11	Cutting Jarrah fruit cases and scantling for sale and local use from Permit 98.
Harris, C. T., Capel ...	...	P.P., Wellington Loc. 1095	do. ...	15	0 40	...	5 0	17 0	2	90	...		Cutting Jarrah fruit cases and scantling. Operating Permit 369.
Hurst & Reilly, Boyanup ...	April, 1922	Permit 229, S.M.S. 31/33	Twin and circular saws	6	...	20 0	3 40	16 0	1	60	7	4	Cut Jarrah fruit cases and other timber on Permit 229. Closed down.
Hutton, T. G., Capel ...	1917	P.P., Loc. 77 ...	Circular saw ...	6½	...	0 40	4 0	16 0	10 doz. fruit cases	50	8	11	Cutting Jarrah fruit cases and a little building timber from P.P.
Martin, R. M., Queenwood ...	1918	P.P., Loc. 629 ...	do. ...	8	1 0	...	1 20	33 0	1½	70	9	7	Cutting Jarrah fruit cases for own use only from P.P.
Millar, Thos., Thompson's Brook	...	P.P., Loc. 61 ...	do. ...	6	...	0 20	4 0	31 0	1	90	9	7	Cutting Jarrah fruit cases and scantling. Working intermittently on P.P.
Millar's Timber and Trading Co., Ltd., East Kirup	1910	Timber Lease 257/113	Vertical, twin, and circular saws	350	0 60	8 0	13 0	37 0	100	45	10	4	Cutting Jarrah. Operating Timber leases 257/113 and 291/113.
Miller, E. E., Donnybrook ...	...	P.P., Loc. 158 ...	Circular saw ...	6	0 15	...	0 10	28 0	1	60	...		Cutting Jarrah fruit cases only. Operating Permit 243.
Patróni, J., Upper Capel ...	June 1921	P.P., Loc. 1292 ...	do. ...	10	0 40	...	5 0	25 0	3	60	8	10	Cutting Jarrah fruit cases for own use only from P.P.
Pinto, E. B., Preston ...	May, 1922	P.P., Loc. 1988 ...	do. ...	6	...	1 0	1 40	31 0	¾	70	9	7	Cutting Jarrah fruit cases for own use only from P.P.
Preston Valley Sawmills, Ltd., Lowden (No. 2)	Feb., 1920	P.P., Lease 48/822, S.M.S. 13/11a	Twin and circular saws	28	1 0	3 0	1 0	35 0	10-12	50	10	1	Cutting Jarrah, general sizes, from P.P.
Preston Valley Sawmills, Ltd., Noggerup	1906	S.M.S. 13/11a ...	do. ...	40	1 0	4 0	On main line	48 0	14	40	11	3	Cut Jarrah for fruit cases and local and export markets. Operating Saw Mill Permit 95/11. Closed down.

Slattery, B., Ferguson ...	1919	P.P., Loc. 578 ...	Circular saw ...	4	1 0	At mill	8 0	9 0	$\frac{1}{2}$	75	No export	Cutting Jarrah, Banksia, Marri and Peppermint. Fruit cases principally from P.P.
Thompson, G. P., Argyle ...	3-4-21	P.P., Loc. 3217 ...	Twin and circular saws	8	...	1 0	1 20	19 0	$\frac{1}{2}$	40	8 4 No export	Cutting Jarrah for own use and sale locally. Operating Permit 188.
Warner, W. A. (junr.), Mullalyup	Mar., 1921	P.P., Loc. 1012 ...	Circular saw ...	6	...	1 0	1 0	41 0	10 doz $\frac{3}{4}$ flat fruit cases	50	10 10	Cutting Jarrah for fruit cases, and timber for use on farm from P.P.
<b>JARRAHWOOD DISTRICT.</b>												
Forests Department, Wonnerup	30-6-21	State Forest, No. 2	Twin and circular saws	40	0 60	No landing	0 20	6 0	2	36	...	Cutting Tuart. Bulk of output for W.A.G. Railways.
Kauri Timber Co., Ltd., Barabup	1909	Loc. 692, State Forest No. 6	Vertical, twin, and circular saws	85	0 60	20 0	6 0	22 0	29	41.52	9 11	Cutting Jarrah sleepers and building timber. Operating Sawmill Permit 61/11.
Kauri Timber Co., Ltd., Ellis Creek	1914	S.M.P. 61/11, S.M.S. 22/33	Band and circular saws	75	0 60	3 0	14 0	32 0	32	49.28	11 3	Cutting Jarrah sleepers and building timber. Operating Permit 61/11.
Millar's Timber and Trading Co., Ltd., Jarrahwood	...	P.P., Sussex Loc. 361	Twin and circular saws	40	0 60	7 0	0 5	28 0	20	43	9 2	Cutting Jarrah timber. Operating timber leases 145/113, 149/113, and 150/113.
Smith, J. F., Nannup ...	Mar., 1923	Town Lot 157 ...	Circular saw ...	20	...	0 20	0 20	46 0	1	45	No export	Cut Jarrah for house timbers and fruit cases from P.P. Not working, 1923-24.
Nicholson, John, Dellerton ...	Oct., 1923	P.P. Loc. 3898 ...	Twin and circular saws	32	2 0 to mill	...	2 0	36 0	11 $\frac{1}{2}$	36	10 2	Cutting Jarrah timber. Operating Permit No. 145.
Swan Sawmills, Ltd., Claymore...	1921	Permit 91, S.M.S. 4/33	Circular saw ...	40	1 0	1 0	2 0	22 0	15	41	8 5	Cutting Jarrah timber from Permit 91.
<b>MANJIMUP DISTRICT.</b>												
Edwards, R. H., Balbarrup ...	Sept., 1921	P.P., Loc. 7407 ...	Circular saw ...	8	0 5	...	13 0	90 0	$\frac{1}{2}$	50	15 8 No export	Cutting fruit cases and Jarrah timber for own use from P.P.
Fanning, H. A., Balbarrup ...	Feb., 1922	P.P., Nelson Loc. 2278	do. ...	6	0 20	...	7 0	90 0	$\frac{1}{2}$	50	15 8 No export	Cut Jarrah fruit cases and timber for own use from P.P. Not working.
Glauder, F., Pemberton ...	Dec., 1921	P.P., Nelson Loc. 2720	do. ...	6	0 40	...	21 0	93 0	$\frac{1}{2}$	50	15 11 No export	Cut Jarrah, Marri, Sheoak and Banksia for own use from P.P. Not working.
Group Settlers, Northcliffe ...	Mar., 1924	Crown Lands ...	do. ...	10	1 0 to mill	...	38 0	93 0	3	30	No export	Cutting Jarrah for G.S. cottages off G.S. blocks.
Hornby, F. H., Balbarrup ...	1921	P.P., Nelson Loc. 1615	do. ...	6	0 40	...	7 0	90 0	1	50	15 8 No export	Cutting Jarrah, Marri, Blackbutt and Banksia. Fruit cases and timber for own use from P.P.
Johnson, J., Balbarrup ...	1912	P.P., Nelson Loc. 1907	do. ...	12	0 40	...	5 0	90 0	1	50	15 8 No export	Cutting Jarrah and Blackbutt, fruit cases and timber for own use from P.P.
Ralph, W., Balbarrup ...	1910	P.P., Loc. 2384 ...	do. ...	7 $\frac{1}{2}$	0 40	...	9 0	90 0	$\frac{1}{2}$	50	15 8 No export	Cutting Jarrah fruit cases and timber for own use from P.P.
State Sawmills, No. 1, Manjimup	5-12-1913	S.M.P. 86/11, Reserve 1655	Vertical, twin, and circular saws	240	0 60	10 0	4 0	90 0	39	40-44	15 8 and 5d. hauling	Cutting Jarrah and Karri timber for local and export trade from Permits 86/11 and 310.

APPENDIX 4.—continued.

Name of Sawmill Owner, and District.	Date of erection of Mill.	Locality Permit, Lease No. or Private Property.	Type of Mill.	Horse-power of Mill.	Average distance from Stump to Landing.	Average distance from Landing to Mill.	Distance from Mill to Main Line Siding.	Distance from Siding to nearest Port.	Output in loads of squared timber per day.	Percentage of recovery.	Rate per ton on Sawn Timber to Port of shipment.	Remarks.
State Sawmills, No. 2, Pemberton	1920	S.M.P. 85/11, Reserve 16354	Vertical and circular saws	400	M. Ch. 0 40	M. Ch. 7 0	M. Ch. 17 0	M. Ch. 93 0	50	40-45	s. d. 15 11	Cutting Karri for local and export trade. Operating Permit 85/11.
State Sawmills, No. 3, Pemberton	1913	S.M.P. 85/11, Reserve 16354	Twin and circular saws	280	0 40	7 0	17 0	93 0	50	40-45	15 11	
Timber Corporation, Ltd., Palgarup	1921	P.P., Nelson Loc. 1024 and S.M.P.'s, 386 and 144	do. ...	25	1 0	2 0	2 60	85 0	15	40	15 3	Cut Karri for local and export trade. Operating Permit 85/11 Cut Jarrah. Operates Permit 144 and P.P. Mill closed down on 11th March, 1922.
Wilgarrup Karri and Jarrah Co., Ltd., Jarnadup	April to Sept., 1911	S.M.P. 42/11, S.M.S. 7/33	Vertical and circular saws	75	0 30	8 0	0 30	93 0	34	39-65	15 11	
<b>MARGARET RIVER DISTRICT.</b>												
Adams, W. F., Margaret River ...	...	...	Twin saws ...	19	1 40	...	2 40	37 0	3	...	...	Cutting Jarrah.
Donald, R., Yallingup ...	...	Permit 441...	Circular saw ...	12	0 60 to mill	...	4 0	16 0	1	...	No Export	Driven by water power. Cuts timber for own use.
Group Settlers, Nuralingup ...	...	Crown Lands ...	Twin and Circular saws	10	0 60	0 60	1 40	25 0	4	40	No Export	Cutting Jarrah for Group Settlement Cottages from Group Settlement blocks.
Margaret River Timber Co., Marmallup	...	Permit 328, S.M.S. 26/33	Circular saw ...	20	1 40 to mill	...	0 5	24 0	7	36	8 8	Cutting Jarrah for local and export trade from Permit 328. Mill not yet completed.
Pilgrim, W. F. (W.A. Jarrah Forests, Ltd.) Margaret River	...	...	Twin saws ...	30	1 0 to mill	...	1 37	40 0	10	55	...	
<b>METROPOLITAN DISTRICT.</b>												
Buckingham, W. S., Kelmescott ...	...	P.P., Loc. 33 ...	Vertical and circular saws	13	Direct hauling	...	3 40	...	1/4	60	No Export	Cutting Jarrah fruit cases and timber for own use from P.P.
Dennis, H. J., Wanneroo ...	June, 1922	P.P., Swan Loc. 2737	Circular saw ...	11	do. ...	...	...	...	1/4	65	No Export	Cuts fruit cases for local settlers.
Millar's Timber and Trading Co., Ltd., No. 1, Jarrahdale	1913	P.P., Cockburn Sd., Loc. 282	Twin and circular saws	110	1 20	27 0	7 0	30 0	45	45	9 5	Cutting Jarrah timber. Operating Concession 12/0.
Millar's Timber and Trading Co., Ltd., No. 2, Jarrahdale	1922	do. ...	do. ...	55	1 20	27 0	7 0	30 0	22	45	9 5	
Millar's Timber and Trading Co., Ltd., Mundijong (Board Mill)	1919	P.P., Cockburn Sd., Loc. 524	Circular saw ...	20	...	...	1 0	30 0	17	82	9 5	Cuts boards only from fitches supplied by other mills. Operating Concession 12/0.
Railway Department, Midland Junction	...	Midland Junction Workshops	Band and circular saws	80	...	...	...	...	10	50	...	Cuts Tuart and Wandoo for own use.
Turner, W. H., Mundijong ...	Sept., 1921	P.P., Loc. 68 ...	Twin and circular saws	10	0 40 to mill	...	4 40	35 0	1	60	No Export	Cuts Jarrah fruit cases and scantling from P.P.
Pilgrim, J. F., Fremantle ...	1923	Permit 436... ..	do. ...	100	...	...	...	...	10	45	2 3	Cuts Jarrah from Mundaring Weir district, and trucks to Fremantle.
<b>MUNDARING DISTRICT.</b>												
Bettenay, J. & Sons, Karragullen	June 1921	P.P., Canning Loc. 403	Circular saw ...	12	...	...	2 0	...	1	60	...	Cutting Jarrah fruit cases from P.P.
Bunning Bros., Ltd., Lion Mill ...	1901	P.P., Loc. 1036 ...	Twin and circular saws	18	3 0	8 0	0 40	37 0	12	40	10 4	Cutting Jarrah, Wandoo and Blackbutt for export and local trade from P.P.



Curcis, Chisholm & Co., Canning Dale	April 1921	P.P., Loc. 520 ...	Circular saw ...	14	1 0 to mill	...	7 0	...	2½	50	...	Cutting Jarrah for fruit cases and scantling from P.P.
Mann, A. S., Wundowie	Jan., 1921	P.P., Avon Loc. 6649	do. ...	12	3 0 to mill	...	0 4	53 0	2	50	...	Cutting Jarrah for local use from Permit 118 and P.P.
Millar's Timber and Trading Co., Ltd. (Barton's), Pickering Brook	...	Concession 12/1 ...	Twin and circular saws	25	1 0	6 0	8 0	38 0	10	46	10 8	Cut Jarrah sleepers and scantling. Mill has been closed since 4th March, 1924. Operated Concession 12/1.
Palmateer, G. H., Bickley	1919	P.P. Loc. 672 ...	Circular saw ...	6	...	...	0 40	...	...	...	...	Cut waste Jarrah into fruit cases. Mill closed and is unlikely to start again.
Stinton, H., Karragullen	Jan., 1913	P.P. ...	do. ...	10	1 0 to mill	...	2 0	45 0	½	75	...	Cuts Jarrah fruit cases and timber. Mill being sold as parts and may not start again as complete mill.
Waters, A., Sawyers' Valley	Sept., 1921	P.P. Lease 297/55	do. ...	8	0 60 to mill	...	0 70	35 0	...	...	...	Cutting Jarrah fruit cases and scantling. Operating Permit 218.
Weston & Smailes	...	Compartment No. 155	Twin saws ...	16	1 0 to mill	...	2 40	38 0	5	40	10 8	Working on Concession 12/1.
PINJARRA DISTRICT.												
Australian Lumber Co., Ltd. (No. 1, Hotham)	1921	P.P. Loc. 703 ...	Twin and circular saws	25	1 0	Direct to mill	0 20	88 8	12	45	16 7	Cutting Jarrah and Wandoo on private property.
Australian Lumber Co., Ltd. (No. 2, Hotham)	1921	P.P. Loc. 703 ...	do. ...	30	1 0	...	0 20	88 8	20	45	16 7	Cutting Jarrah on private property.
Australian Lumber Co., Ltd., Inglehope	1919	Permit 54 ...	do. ...	37	0 60	6 0	on line	82 0	16	42	...	Cutting Jarrah for local and export trade from Permit 54.
Bailey Timber Co., Mandurah	Nov., 1921	P.P. Loc. 16 ...	Crosscut, band, and circular saws	75	3 0 to mill	...	12' 0	66 0	1	70	No Export	Cutting Tuart, railway and coach building timbers on private property.
Edgeworth, & Co. Pinjarra	1920	P.P. Lot 14 ...	Circular saw ...	10	...	...	1 0	61 0	...	...	13 2	Cutting fruit cases from waste Jarrah from other mills.
Millar's Timber and Trading Co., Ltd., Marriauup	1910-11	Timber Lease 330/113 and Pt. 440	Twin and circular saws	36	0 60	2 0	...	73 0	12	50	14 2	Cutting Jarrah for local and export trade. Operating Timber Lease 330/113.
Millar's Timber and Trading Co., Ltd., Nanga Brook	1908	Timber Lease 299/113 and S.M.P. 79/11	Twin, vertical, and circular saws	80	0 60	8 0	28 0	37 0	55	43	14 9	Cutting Jarrah for local and export trade. Operating Timber leases 244/113 and 299/113.
Port & Co., Ltd., Pindalup	1911	S.M.P. 34/11, S.M.S. 13/33	Horizontal and circular saws	28	2 0	...	...	88 0	9	48	15 8	Cutting Jarrah for local and export trade from Permit 34/11.
Port & Co., Ltd., Pindalup (Board Mill)	1923	S.M.P. 34/11, S.M.S. 27/33	Twin and circular saws	25	Nil	...	3 40	94 0	8	...	15 2	Cutting Jarrah for local and export trade. Mill started cutting 3-7-23 from Permit 34/11.
Railway Department, No. 1, Dwellingup	1912	Railway property ...	do. ...	30	2 0	Landing at mill	on line	70 0	4	48	14 6	Cut Jarrah for local and export trade. Mill ceased cutting Jan., 1923.
Railway Department, No. 2, Dwellingup	Nov., 1912	P.P. Loc. 1037 ...	do. ...	100	0 60	3 0	4 40	75 71	50	49 16	14 6	Cutting Jarrah, Sheoak, and Bulitch for own use, but surplus for export. Operating Permit 78/11.
Rosenthal, C. H. A., Meelon	1-8-1921	Railway Reserve, Meelon	Circular saw ...	12	...	...	...	67 0	12 doz. fruit cases	...	13 8	Cutting fruit cases from waste Jarrah from other mills.
State Saw Mills (Patterson, J. H.), Amphion	1913-14	S.M.P. 81/11, S.M.S. 19/33	Twin and circular saws	40	2 0	2 40	0 60	82 0	5	...	15 4	Cutting Jarrah for local and export trade from Permit 81/11.

APPENDIX 4—continued.

Name of Sawmill Owner, and District.	Date of Erection of Mill.	Locality, Permit No., Lease or Private Property.	Type of Mill.	Horse Power of Mill.	Average distance from Stump to Landing.		Average distance from Landing to Mill.		Distance from Mill to Main Line Siding.		Distance from Siding to nearest Port.		Output in Loads of Squared Timber per day.	Percentage of Recovery.	Rate per Ton on Sawm Timber to Port of Shipment.		Remarks.
					M.	Ch.	M.	Ch.	M.	Ch.	M.	Ch.			s.	d.	
State Sawmill No. 4, Wuraming	1913	S.M.P. 79/11, S.M.S. 17/33	Twin and circular saws	30	0	40	6	10	0	60	90	0	22½	47	15	10	Cutting Jarrah for local and export trade from Permit 79/11.
State Sawmill, No. 5, Holyoake	1911	S.M.P. 27/11, S.M.S. 12/33	do. ...	65	0	40	13	0	on line	77	0	47½	50	14	7.	Cutting Jarrah for local and export trade from Permits 27/11 and 81/11.	
Whittaker Bros., North Dandalup	1902	S.M.P. 84/11, S.M.S. 12/11a	do. ...	160	1	0	7	0	4	0	57	0	33	42	11		
YARLOOP DISTRICT.																	
Millar's Timber and Trading Co., Ltd., Hoffman Mill	1920	Timber Lease 261/113	Horizontal Band saw	32	0	60	7	0	18	0	37	0	...	...	10	4	Cutting Jarrah
Millar's Timber and Trading Co., Ltd., No. 1, Mornington	1898	P.P. Loc 1 ...	Vertical Twin and circular saws	60	0	30	20	0	6	60	26	0	45	44	9	4	Cutting all classes of Jarrah Timber, including fruit cases, for local and export trade. Operating Timber Leases 186/113, 227/113, 230/113, 229/113, 269/113, 296/113, 297/113, and 325/113.
Millar's Timber and Trading Co., Ltd., No. 2, Mornington	1898	P.P., Loc. 1 ...	Twin and circular saws	60	0	30	20	0	6	60	26	0	45	44	9	4	
Millar's Timber and Trading Co., Ltd., Yarloop	1896	P.P. ...	Band and circular saws	18	0	75	18	0	on line	37	0	6.16	60	10	4	Cut Jarrah. Not working at present.	
Trees, Ltd., Treosville ...	1920	S.M.P. 71/11, S.M.S. 9/11a	Twin and circular saws	36	1	20	1	0	31	0	57	0	10	45	...	Cuts Jarrah sleepers, boards and scantling. Operates Permit 71/11. Not working during 1922-23.	

## APPENDIX 5.

Table showing the number of various Timber Workers' Registration Certificates issued from 1st July, 1923, to 30th June, 1924, as compared with those issued during the year ended 30th June, 1923.

Class of Registrations.	Number issued for year ended 30th June, 1923.	Number issued for year ended 30th June, 1924.
Hewers	459	346
Fallers	268	455
Haulers	105	123
Carters	50	50
Managers and Bush Foremen	49	56
Teamsters	20	41
Swampers	111	182
Firewood Cutters and Carters	126	177
Charcoal Burners and Carters	...	2
Timber Getters *	15	19
Horse Drivers	8	24
Barrel Stave and Billet Splitters	3	3
Ropemen	2	1
Handlecutter	1	...
Whistle Boys	2	1
Shoeman	...	1
Beam Squarers	4	1
Engine Drivers	3	3
Hookmen	4	2
Sandalwood Getters	...	751
	1,230	2,238

\* Working on Coal Mining Leases at Collie.

## APPENDIX 6.

Table showing the number of Licenses issued from 1st July, 1923, to 30th June, 1924, as compared with those issued during the year ended 30th June, 1923.

License.	Number issued for year ended 30th June, 1923.	Number issued for year ended 30th June, 1924.
Managers and Bush Foremen *	16	19
Firewood	2,782	1,975
Mining Timber	67	71
Timber	3	...
Bark Strippers	35	44
Fence Post	21	29
Sandalwood	705	20
Totals	3,629	2,158

\* These figures allude to the Goldfields only.

## APPENDIX 7.

List of Specimens Collected and Identified, during the year ended 30th June, 1924.

Botanical Name.	Local Name.	Botanical Name.	Local Name.
<i>Acacia hastulata</i> , Sm.		<i>Eucalyptus tetraptera</i> , Turcz. ...	Thick-leaved Marlock.
" <i>Merallii</i> , F. v. M.		" <i>Preissiana</i> , Schau. ...	Yellow-fl. Marlock.
" <i>bibentata</i> , Benth.		" <i>falcata</i> , Turcz. ...	White Mallet.
" <i>glaucoptera</i> , Benth.		" <i>leptophylla</i> , F. v. M. ...	Mallee.
" <i>Crispula</i> , Benth.		" <i>incrassata</i> , Labill. ...	do.
" <i>minutifolia</i> , F. v. M.		" <i>conglobata</i> , (R. Br.) Maiden	do.
" <i>multispicata</i> , Benth.		" <i>redunca</i> , Schau. ...	do.
" <i>spinosissima</i> , Benth.		" <i>oleosa</i> , F. v. M. ...	do.
" <i>oncinophylla</i> , Benth.		" <i>calycogona</i> , Turcz. ...	do.
" <i>leptoneura</i> , Benth.		" <i>uncinata</i> , Turcz. ...	do.
" <i>divergens</i> , Benth.		" <i>eremophila</i> , Maiden ...	do.
" <i>bidentata</i> , Benth.		" <i>eremophila</i> , var. <i>grandiflora</i> , Maid.	do.
" <i>cyclopis</i> , A. Cunn. ...	Coastal Wattle.	" <i>gracilis</i> , F. v. M. ...	Yorreh.
" <i>aestivalis</i> , E. Pritzel		" <i>Sargenti</i> , Maiden	
" <i>Drummondii</i> , Lindl. var. <i>ovoides</i> , Benth.		" <i>Staeri</i> , Maiden, MS.	
<i>Adenanthos flavidiflora</i> , F. v. M.		" <i>diversicolor</i> , F. v. M. ...	Karri.
" <i>cuneata</i> , Labill.		" <i>angulosa</i> , Schau.	
" <i>obovata</i> , Labill.		" <i>grossa</i> , F. v. M. ...	Broad-leaved Mallee.
<i>Agonis marginata</i> , Schauer.		" <i>dumosa</i> , A. Cunn.	
" <i>Juniperina</i> , Schau. ...	Wattle.	" <i>Forrestiana</i> , Diels.	
<i>Actinotus superbus</i> , Sargent	Flannel Flower.	" <i>diptera</i> , Cecil Andrews	
<i>Amblyosperma scapigera</i> , Benth.		" <i>Dundasii</i> , Maiden ...	Dundas Blackbutt.
<i>Anigozanthos rufa</i> , Labill. ...	Red Kangaroo Paw.	<i>Eriostemon difformis</i> , A. Cunn.	
<i>Anthocercis microphylla</i> , F. v. M.		<i>Eremaea fimbriata</i> , Lindl.	
<i>Boronia ternata</i> , Endl.		<i>Eriachne ovata</i> , Nees. var. <i>villosa</i> , Benth.	
<i>Beaufortia bracteosa</i> , Diels.		<i>Exocarpus spartea</i> , R. Br.	
" <i>purpurea</i> , Lindl.		<i>Fusanus acuminatus</i> , R. Br. ...	Quandong.
" <i>macrostemon</i> , Lindl.		<i>Grevillea tenuiflora</i> , Meissn.	
" <i>decussata</i> , R. Br. ...	Bottlebrush.	" <i>stenocarpa</i> , F. v. M.	
" <i>sparsa</i> , R. Br. ...	do.	" <i>n. sp.</i>	
<i>Banksia speciosa</i> , R. Br.		" <i>umbellata</i> , Meissn.	
" <i>nutans</i> , R. Br.		" <i>oxystigma</i> , Meissn.	
<i>Baeckea uncinella</i> , Benth.		" <i>quercifolia</i> , R. Br.	
<i>Callitris Roei</i> , Endl. ...	Cypress Pine.	" <i>pletypoda</i> , F. v. M.	
" <i>Morrisoni</i> , R. T. Baker. ...	Cypress.	" <i>Hookeriana</i> , Meissn.	
" <i>glauca</i> , R. Br.		" <i>patentiloba</i> , F. v. M.	
" <i>Drummondii</i> , B. et Hook		" <i>concinna</i> , E. Pritzel	
<i>Chamaelaucium ciliatum</i> , Desf.		" <i>pauciflora</i> , R. Br.	
" <i>megalopetalum</i> , F. v. M.	Wax Plant.	" <i>plurijuga</i> , F. v. M.	
<i>Chorizema Henchmanni</i> , R. Br.		<i>Gastrolobium plicatum</i> , Turcz.	
<i>Calythrix tetragona</i> , Labill.		" <i>bilobum</i> , R. Br.	
<i>Cyanostegia lanceolata</i> , Turcz.		<i>Goodenia caerulea</i> , R. Br.	
<i>Casuarina acutivalvis</i> , F. v. M. ...	Sheoak.	" <i>strophiolata</i> , F. v. M.	
<i>Cassinia arcuata</i> , R. Br.		" <i>incana</i> , R. Br.	
<i>Conospermum teretifolium</i> , R. Br.		" <i>pinifolia</i> , D.V.	
<i>Codonocarpus cotinifolius</i> , F. v. M. ...	Mustard Tree.	<i>Gompholobium Eatoniae</i> , F. v. M.	
<i>Cienfugosia hakeifolia</i> (Giord) Ostf. ...	"Hibiscus."	<i>Gyrostemon subnudus</i> (Nees) Diels.	
<i>Cosmelia rubra</i> , R. Br.		<i>Hakea bipinnatifida</i> , R. Br.	
<i>Candollea tetrandra</i> , D.C. ...	Candollea.	" <i>ferruginea</i> , Sweet.	
<i>Cassia eremophila</i> , A. Cunn.		" <i>Pritzeli</i> , Diels.	
<i>Dillwynia cinerascens</i> , R. Br.		" <i>suaveolens</i> , R. Br.	
<i>Dryandra nobilis</i> , Lindl.		" <i>verucosa</i> , F. v. M.	
" <i>circioides</i> , Meissn.		" <i>trifurcata</i> , R. Br.	
<i>Daviesia uniflora</i> , Herbert		" <i>clavata</i> , Labill.	
" <i>oppositifolia</i> , Endl.		<i>Hannafordia</i> , N. sp.	
" <i>teretifolia</i> , R. Br.		<i>Halgania Preissiana</i> , Lehm.	
" <i>pachyphylla</i> , F. v. M.		" <i>integerrima</i> , Endl.	
<i>Darwinia vestita</i> , Benth.		<i>Hibbertia mucronata</i> , Benth.	
" <i>n. sp.</i>		<i>Ionidium floribundum</i> , Walp.	
<i>Dampiera hederacea</i> , R. Br.		<i>Isopogon trilobus</i> , R. Br.	
" <i>juncea</i> , Benth.		<i>Johnsonia pubescens</i> , Lindl.	
" <i>spicigera</i> , Benth.		<i>Kennedyia microphylla</i> , Meissn.	
" <i>Wellsiana</i> , F. v. M.		<i>Lobelia parvifolia</i> , R. Br.	
<i>Dodonaea attenuata</i> , A. Cunn.	Native Hop.	" <i>rhytidosperra</i> , Benth.	
" <i>lobulata</i> , F. v. M. ...	do.	<i>Logania flaviflora</i> , F. v. M.	
" <i>pinifolia</i> , Miq.		" <i>tortuosa</i> , Herbert	
<i>Eucalyptus Gardneri</i> , Maiden ...	Blue Mallet.	<i>Lasiopetalum molle</i> , Benth.	
" <i>astingsens</i> , Maiden ...	Brown Mallet.	<i>Loudonia Roei</i> , Schlecht.	
" <i>spathulata</i> , Hook ...	Swamp Mallet.	<i>Leptomeria Preissiana</i> , D.C.	
" <i>sepulcralis</i> , F. v. M. ...	Weeping Gum.		
" <i>platypus</i> , Hook ...	Moort.		
" <i>occidentalis</i> , Endl. ...	Swamp Yate.		
" <i>tetragona</i> , F. v. M. ...	Mottlecah.		

## APPENDIX 7—continued.

Botanical Name.	Local Name.	Botanical Name.	Local Name.
<i>Leptospermum podanthum</i> (F. v. M.) Diels.		<i>Persoonia tortifolia</i> , Meissn.	
<i>Lambertia ilicifolia</i> , Hook.		<i>Pityrodia racemosa</i> , Benth.	
<i>Lycopodium carolinanum</i> , Linn. ...	Club Moss.	<i>Persoonia striata</i> , R. Br.	
<i>Leschenaultia tubiflora</i> , R. Br.		<i>Polygonum minus</i> , Huds.	
<i>Leschenaultia formosa</i> , R. Br. ...	Red Leschenaultia.	<i>Psoralea pinnata</i> , L. ...	Taylorina.
<i>Leucopogon Richei</i> , R. Br.		<i>Pomaderris myrtilloides</i> , Fenzl.	
<i>Melaleuca</i> , n. sp.		<i>Ricinocarpus glaucus</i> , Endl.	
" <i>cordata</i> , Benth.		<i>Sphaerolobium medium</i> , R. Br.	
" <i>Baxteri</i> , Benth.		<i>Stylidium luteum</i> , R. Br.	
" <i>uncinata</i> , R. Br. ...	Tamma.	" <i>leptophyllum</i> , D.C.	
" <i>spathulata</i> , Schau.		<i>Scaevola restiacea</i> , Benth.	
" <i>thyoides</i> , Turcz. ...	Salt River Tea Tree.	" <i>phlebopetala</i> , F. v. M.	
" <i>Preissiana</i> , Schau. ...	Paperbark.	" <i>glandulifera</i> , D.C.	
" <i>pulchella</i> , R. Br.		<i>Spinifex longifolius</i> , R. Br. ...	Maritime Spinifex.
" <i>cleutherostachya</i> , F. v. " <i>M. var. abietina</i> , " <i>Benth.</i>		<i>Stachystemon vermicularis</i> , F. v. M.	
" <i>undulata</i> , Benth.		<i>Santalum cygnorum</i> , D.C. ...	Sandalwood.
" <i>acuminata</i> , F. v. M.		<i>Salicornia australis</i> , Soland.	
<i>Micromyrtus imbricata</i> , Bth.		<i>Thomasia tenuivesta</i> , F. v. M.	
<i>Mirbelia floribunda</i> , Benth.		<i>Trymalium ledifolium</i> , Fenzl.	
<i>Macropidia fuliginosa</i> (Hook), Ostf.		<i>Thryptomene fimbriata</i> , Herbert	
<i>Monopsis debilis</i> (L.) Presl.		<i>Tetratheca viminea</i> , Lindl.	
<i>Mesembrianthemum aequilaterale</i> , " <i>Haw.</i>	Pig Face.	<i>Trichinium Manglesii</i> , Lindl.	
<i>Myoporum acuminatum</i> , R. Br.		<i>Templetonia retusa</i> , R. Br. ...	Bullock Bush.
<i>Myoporum Beckeri</i> , F. v. M. ...	Treacle Bush.	<i>Verticordia serrata</i> , Schauer	
<i>Macrozamia</i> , sp. ...	Zamia.	" <i>Roei</i> , Endl.	
<i>Pittosporum phyllaeroides</i> , D.C. ...	Cheesewood.	" <i>picta</i> , Endl.	
<i>Plagianthus diffusus</i> , Benth.		" <i>stylotricha</i> , Diels.	
<i>Prostanthera microphylla</i> , A. Cunn.		<i>Verreauxia Reinwardtii</i> , Benth.	
		<i>Waitzia corymbosa</i> , Wendl. ...	Everlasting.

## APPENDIX 8.

## Summary of Prosecutions for Year ended 30th June, 1924.

Charge.	Number of Prosecutions.	Number of Convictions.
Unlawful removal of Timber... ..	21	17
Unlawful removal of Sandalwood ... ..	14	10
Unlawfully causing Fires ... ..	4	4
Other offences under Forests Act., 1918 ... ..	21	21
Totals ... ..	60	52