

1922.
—
WESTERN AUSTRALIA.

REPORT

OF

THE FORESTS DEPARTMENT

FOR THE

YEAR ENDED 30TH JUNE, 1922,

BY

S. L. KESSELL,
ACTING CONSERVATOR OF FORESTS.

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

[SECOND SESSION OF THE ELEVENTH PARLIAMENT.]

PERTH :

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

1922,

Forests Department,
Perth, 22nd September, 1922.

The Hon. 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, 1922.

I have the honour to be,

Sir,

Your obedient servant,

S. L. KESSELL,

Acting Conservator of Forests.

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REPORT OF THE FORESTS DEPARTMENT FOR THE YEAR ENDED

30th JUNE, 1922.

I.—CONSTITUTION OF STATE FORESTS.

1.—FOREST RESERVATION.

The field work connected with the detailed classification of the prime Jarrah region was completed in September, 1919. This work was carried out on a basis agreed upon in conference with the Lands Department, and detailed plans have been signed by the Surveyor General and the late Conservator of Forests, on which are recommended the dedication of 2,000,000 acres of jarrah country as State Forest and 458,000 acres as Timber Reserves.

The Government have deferred taking action on this recommendation. The position resulting is unsatisfactory from a departmental stand-point, in that "The Forests Act, 1918," was framed primarily with the object of controlling operations on State Forests and Timber Reserves. With no reservations gazetted under this Act over the major portions of the prime timber belt, not only are the difficulties of proper control increased, but the interests of the State are not properly safeguarded where public money is being spent on reforestation work on land not dedicated as State Forest.

The country on which prime jarrah is found is unsuitable for agriculture, and of very little value for grazing, and much inter-departmental correspondence might be eliminated and time saved by the dedication of State Forests and Timber Reserves already recommended.

The position with regard to karri is more involved. Karri grows on soil which in limited patches is suitable for various forms of agricultural development. It is generally agreed that the average soil on which karri and marri are found growing in mixed forest is of better quality and more suited for intense culture than the soil on which the pure karri forest is found. The Hon. Premier has directed that

pure karri forest shall be dedicated as State Forest, but although a joint recommendation was submitted by the Lands Department and the Forests Department on 10th May, 1922, setting out the proposed dedication of the more immediately accessible karri country, no dedication has yet been gazetted. The inclusion of certain cut-over country in the area recommended for dedication as State Forest has aroused considerable discussion, but the fact that mills have worked through an area should not affect any segregation into classes based on the original timber stocking.

There are two distinct classes of reservation which need to be given effect to immediately throughout that portion of the South-West in which virgin karri is still to be found.

(a) *Temporary reservation of mixed Marri and Karri country pending the marketing of the timber.*

The view held by the Department, which has the support of both existing settlers and sawmillers, is that it is quite impracticable to grant land to settlers under any form of tenure which reserves the sound and marketable karri to be cut out by a mill after the settler is established. The economic extraction of such timber, if at all possible, would leave the country in a state of ruin, comparable only to a battlefield. The only sound basis for deciding whether a settler is a better asset than the standing timber is a comparison of the gross wealth which each is capable of yielding to the State. Unless it can be shown that the destruction of the timber will mean the establishment of a settler who will produce more gross wealth in the period likely to elapse before the timber can be cut than the export value of the timber at the end of that period, then the trees should be allowed to remain.

The value to the State of a crop of timber is the price paid by a foreign buyer for the timber at port of shipment.

The corresponding value of a settler to the State may be reckoned as the gross wealth which he is capable of producing on his holding. On this basis the following table has been drawn up. It makes no

pretence to cover every factor, but presents a striking example of the amount of work a settler must do to prove as valuable as the retention of an existing crop of timber.

I. Loads in round.		II. Loads in square 40 per cent. recovery.		III. Export Value at £7 10s. per ld. of sawn timber f.o.b.	IV. Gross saleable wealth which settler must produce <i>per annum</i> to equal the amount in column 3 from 100 acres on which he is established, at a cost of £1,000.	V.	VI.	VII.
a.	b.	c.	d.	e.	f.	g.	h.	i.
per acre.	per 100 acres.	per acre.	per 100 acres.		For 5 years.	For 10 years.	For 15 years.	For 20 years.
2.5	250	1	100	£ 750	£ 186	£ 102	£ 71	£ 53
5	500	2	200	1,500	319	159	103	73
7.5	750	3	300	2,250	452	216	135	91
10	1,000	4	400	3,000	585	273	167	114
12.5	1,250	5	500	3,750	718	330	200	135
15	1,500	6	600	4,500	851	387	232	155
17.5	1,750	7	700	5,250	984	444	264	175
20	2,000	8	800	6,000	1,118	501	296	196
22.5	2,250	9	900	6,750	1,251	558	329	216
25	2,500	10	1,000	7,500	1,384	615	361	237
27.5	2,750	11	1,100	8,250	1,517	671	393	257
30	3,000	12	1,200	9,000	1,650	728	425	277
32.5	3,250	13	1,300	9,750	1,783	785	458	298
35	3,500	14	1,400	10,500	1,916	842	489	318
37.5	3,750	15	1,500	11,250	2,049	899	522	338
40	4,000	16	1,600	12,000	2,182	956	554	359
42.5	4,250	17	1,700	12,750	2,315	1,013	586	379
45	4,500	18	1,800	13,500	2,448	1,070	619	400
47.5	4,750	19	1,900	14,250	2,581	1,127	651	420
50	5,000	20	2,000	15,000	2,714	1,184	683	440
75	7,500	30	3,000	22,500	4,044	1,753	1,005	644
100	10,000	40	4,000	30,000	5,375	2,322	1,328	848
125	12,500	50	5,000	37,500	6,705	2,891	1,650	1,052
150	15,000	60	6,000	45,000	8,036	3,460	1,972	1,256
175	17,500	70	7,000	52,500	9,366	4,029	2,294	1,460
200	20,000	80	8,000	60,000	10,697	4,598	2,616	1,664
225	22,500	90	9,000	67,500	12,027	5,167	2,938	1,868
250	25,000	100	10,000	75,000	13,358	5,736	3,261	2,071

METHODS OF COMPUTATION.

Column a:

e.g., 1 load in column c = 40% recovery.

" " " = 100% recovery.

$$\frac{1 \times 100}{40} = 2.5 \text{ loads.}$$

Column e:

Column d x £7½.

i.e., 100 loads at £7 10s. = £750.

Columns f to i:

To the value of the timber in column e—

add for column f £300.

g £600.

h £900.

i £1,200.

These figures represent simple interest on initial outlay of £1,000 in establishing a settler, i.e.:

£1,000 at 6% for 5 years = £300.

£1,000 at 6% for 10 years = £600.

£1,000 at 6% for 15 years = £900.

£1,000 at 6% for 20 years = £1,200.

The object then is to find what annual return for the respective period equals the combined figure of

timber value and interest on cost of establishing a settler. This may be worked out as in example hereunder by using the third column of tables given on page 261 of Chapman's "Forest Valuation," e.g.:

Export value of sawn timber (column e) £750
Simple interest on initial outlay for 10 years 600

£1,350

From tables:

£1 per annum obtained every year for 10 years amounts to £13.1808 at the end of that period allowing interest at 6%.

Therefore 1,350

———— = £102 (column g)

13.1808

per annum each year for 10 years would amount to £1,350.

In the above table the value of karri has been taken at £7 10s. per load f.o.b. This price has already been exceeded and in view of the rise in the value of timber during past years, there is little doubt that

as karri becomes better known and the sawmillers cater for trade requirements by making provision for only properly seasoned and graded timber to leave their mills, this price will advance considerably.

Presuming that the average settler will produce £300 gross wealth every year from the first year established, the tabulated statement may be interpreted as follows:—

1. Country which is not likely to be cut-over for five years.

The destruction of timber averaging more than two loads in the square or five loads in the round per acre is not warranted. (In this low loadage country other factors, such as the cost of milling scattered large trees, have to be considered.)

2. Country which is not likely to be cut-over for 10 years.

The destruction of timber averaging more than 12½ loads in the round or five loads in the square per acre is not warranted.

3. Country which is not likely to be cut-over for 15 years.

The destruction of timber averaging more than 22½ loads in the round or 9 loads in the square is not warranted.

4. Country which is not likely to be cut-over for 20 years.

The destruction of timber averaging more than 35 loads in the round or 14 loads in the square is not warranted.

Collaboration during recent years between Lands Department and Forests Department has resulted, with comparatively few exceptions, in the temporary reservation of land on which timber occurs in marketable quantities, but with a big influx of settlers resulting in the filling up of the more accessible areas of Crown land, there is a tendency to consider the placing of settlers on country which, although it carries a comparatively low loadage, still represents under timber a better asset to the State for the time being than a settler.

(b) *Permanent Reservation.*

The question of how an area shall be utilised when the original crop of timber is removed is one entirely apart from that dealt with under Section (a).

Any calculation of the relative merits of forestry or agriculture on a particular area is necessarily based on unknown future values. It is, however, universally agreed that sufficient area of the State should be kept under timber to supply her internal requirements in perpetuity. The area necessary for the purpose is not generally appreciated. With a population of a million, an annual consumption per head of population of twenty cubic feet of timber and less than 2,500,000 acres of prime hardwood forest, it will require all the skill of the forester and the whole-hearted support of the people to accomplish this very necessary undertaking.

The areas of our prime forests have been very largely over-estimated, and the position to-day is such as to render advisable the immediate dedication of all belts of pure karri forest as soon as located.

Throughout the prime karri country pockets of rich soil occur along water courses where the gullies widen out, leaving small alluvial flats.

In order that such areas may be utilised for intense culture, it is proposed that the following proviso be

added to the description of the boundaries of such State Forest in the Executive Council minute dealing with the dedication, viz.:—

“from such dedication shall be excluded areas of an average width of twenty chains on either side of the water courses shown on plan, and any tributaries thereof.”

In the opinion of the Solicitor General, such description would comply with Section 28 of “The Forests Act, 1918,” and the excluded land might be subsequently more particularly defined in accordance with the provisions of that section.

This recommendation, if adopted, will enable such land to be made available under the ordinary forms of land tenure which can be dealt with by existing organisation for land settlement; it has been recommended, however, that special provisions be made for the selection and control of the settlers. Particulars of this proposal are set out in Chapter XII., page 20.

TIMBER RESERVES IN THE WHEAT BELT.

Public bodies and residents in the wheat belt have expressed on occasions throughout the year considerable dissatisfaction concerning the action of the Department in holding up land as timber reserves in agricultural areas, particularly in cases where the land carries very little timber at the present time.

These reserves have little value as long as every farmer has portion of his own holding uncleared, but the day will come when the farmers will have repeated the old error of clearing the whole of the timber growing on their own properties, and the supply of timber, and even firewood, for local requirements will become a very real problem.

2.—ALTERATION IN AREA OF FOREST RESERVATION.

STATE FORESTS.

Under Forests Act, 1918.

	June, 1921.	June, 1922.	In-crease.	De-crease.
	acres.	acres.	acres.	acres.
Jarrah	38,487	39,257	770	...
Karri ... ..	...	...	...	...
Tuart	5,841	6,091	250	...
Other species	700	540	...	160
Total	45,028	45,888	1,020	160

TIMBER RESERVES.

Under Forests Act, 1918.

	June, 1921.	June, 1922.	In-crease.
	acres.	acres.	acres.
Jarrah ... ..	...	326	326
Karri ... ..	...	1,766	1,766
Other species (Eastern Gold-fields)	797,615	856,224	56,609
Total	797,615	858,316	58,701

State Forests.

Jarrah.—The increase of 770 acres was due to the inclusion of Mining Lease 293, comprising 230 acres and an adjustment of the boundaries of State Forest No. 4, by which an additional 540 acres were included.

Tuart.—The increase of 250 acres in the area of State Forest No. 2, was due to the inclusion of Sussex Locations 19, 25, 26, 64, 74 and 93.

An area of 160 acres of mixed jarrah and karri country, being Nelson Location 2716, was excised from State Forest No. 5.

Timber Reserves.—Practically the whole of the timber reserves declared under the "Forests Act, 1918," are around mining areas in the Eastern Goldfields, and their value is limited to the assistance they may prove to the mining industry.

3.—CLASSIFICATION.

No further areas of timber country were classified.

II.—REVENUE.

(Gross revenue £88,529 16s.)

The gross revenue collected shows an increase of £13,060 16s. over that for the previous year, which amounted to £75,469. (See appendix 1A.)

1. TIMBER TRADE (TOTAL REVENUE, £60,292 15s.)

The total production of timber (sawn and hewn) for the year amounted to 15,140,100 cubic feet (Appendix 2E), which, at 2s. 6d. per cubic foot, represents a value of £1,892,512 10s.

The volume of undressed timber exported amounted to 8,286,229 cubic feet, valued at £1,036,202 (*i.e.*, approximately, 2s. 6d. per cubic foot). The value of dressed timber exported for the same period amounted only to £4,845, representing a value of, approximately, 4s. per cubic foot, and articles manufactured from wood to the value of £22,428 only, left the country.

These figures show no improvement in the recognition of jarrah as a high grade hardwood, and railway sleepers continue to be the chief form in which both jarrah and karri are exported. The chief market is South Africa, and after that the Eastern States of the Commonwealth (Appendix 2H).

During the early months of the financial year the output of sawn timber was abnormally high, but after October the volume of cutting decreased until, at the present time, a number of the mills are closed down. The volume of sleepers hewn continued to increase until March of the present year, when the sleepers hewn on private property, leases, and concessions reached a record figure of 325,000 cubic feet for the month. During the following months there has been a considerable reduction in the volume of sleepers hewn.

This slump in the industry has resulted from failure to secure further oversea orders, which is held to be due partly to restrictions imposed on developmental programmes in other countries, owing to high rates of interest on loan moneys and partly to the high prices asked for local sleepers.

The sawmillers contend that the prohibitively high prices which they are forced to quote are largely due to conditions imposed by the Arbitration Award under which they are working. Their representations that the conditions of this award should be reviewed have proved successful, and the matter is now before the Commonwealth Arbitration Court. They are particularly concerned about clauses referring to the weekly hire system, which has been substituted for the daily wage throughout the industry, the question of sick pay which the weekly hire system involves, and the forty-four hour week. The employers contend that if these matters can be satisfactorily adjusted, even with wages at their present level, the industry will be in a far better position to compete on the world's market and they will have reasonable prospects of securing orders and restarting their mills. Prices paid for sleeper hewing have steadily decreased until, in many localities, very little over the award rate is now being paid.

Lack of oversea orders has meant that the local Government Railways have been offered many times the quantity of sleepers they are able to absorb at prices ranging up to 50 per cent. lower than that at which supplies were obtainable twelve months ago. The position has been watched closely and recommendations made whereby distress through unemployment might be alleviated by the building up of a limited reserve of sleepers for seasoning before use in the Government Railways.

It is maintained by representatives of employees that the number of men thrown out of work in the timber industry is less than that represented by the sawmillers, and while it is evident that unemployment does exist in certain centres, the manner in which the country has been able to absorb the hundreds of men stated to have been put off is certainly remarkable.

The *import trade* in timber showed a satisfactory decrease. The value of timber imported for 1920-1921 was £171,654, while the value for 1921-1922 was £92,448 (Appendix 2L). It would appear that greater use is being made of our local hardwoods for general structural and domestic purposes. This comparatively high importation of softwoods from foreign countries will continue over the period elapsing before the State undertakes pine planting on a scale commensurate with our requirements and the time taken by such trees to reach maturity, providing always, of course, that other countries continue to have a surplus of such timber which they are prepared to export.

(a) *Concessions and leases.*—Rents on leases, £6,960; on concessions, £686.

The position with regard to extension of leases and concessions, all of which are held by Millars' Timber and Trading Company, was fully set out in the annual report of the Department for 1921. The company were not officially advised of the decision of Cabinet to extend their concessions and leases under Section 6, Subsection (b) (1) of the Forests Act until 31st May, 1922, when a letter was addressed to them by the Hon. Minister for Forests informing them of this decision, and requiring them to supply certain detailed information concerning their operations during the war period so that the period of the extension for each individual lease and concession might be fixed. The particulars asked for have been supplied, and are now under consideration.

(b) *Sawmilling permits granted under Section 11, "Land Act Amendment Act, 1904."*—Royalties collected: jarrah, £35,906; karri, £2,898.

The royalties payable on timber cut on the above class of permit is fixed by regulation. During the boom period when big prices were being obtained for timber, Mr. Lane Poole recommended the gazettal of a new scale of royalties with a view to obtaining increased revenue. The recommendation was submitted on 10th June, 1921; but a regulation giving effect to this recommendation was not gazetted until 14th October, 1921. By October the first signs of the serious slump which faced the industry were generally apparent and the sawmillers concerned protested that shortage of orders which already affected them made it impossible for them to pay royalties according to the new scale. The Hon. Premier informed a deputation from the Sawmillers' Association that royalties would only be collected at the old rate pending a full inquiry. The Royal Commission on Forestry, which was appointed on 12th January, 1922, was charged with an investigation of these royalty rates among other matters.

Pending the presentation of the report of this Royal Commission a series of amendments to the regulation have been gazetted, making statutory provision for the collection of royalties at the previously existing rates and providing that the balance of such royalties (*i.e.*, the difference between the old rate and the new rate) shall be payable, according to the latest amendment, on 15th September, 1922, unless the regulation shall be amended in whole or in part prior to that date.

The postponement of a final decision on this matter presents a serious problem to sawmillers, who may be called upon to pay the difference in royalty which has accumulated over a period of at least ten months.

The sliding scale on which this new royalty is fixed has been adversely criticised, chiefly on the grounds that there are many factors which it does not take into account. It must be conceded by any person with a knowledge of the timber industry that the cost price of timber at port of shipment is influenced by all of the following factors:—

- (1) Topography of country on which the timber grows.
- (2) Density of stand, size of trees and soundness of logs.
- (3) Distance of bush from port of shipment.

Another factor which need not be considered is actual milling cost. This is controlled by the sawmiller, and depends on efficiency of plant and organisation.

Of the factors listed above only the rail distance from mill to port is easily accessible. In assessing the relative royalties which should be paid, taking into consideration the class of country and the timber on it, no two experts in the country could hope to independently arrive at the same figure. It is not contended that basing the royalty on the distance from port to mill eliminates all anomalies; but it reduces the existing anomaly whereby the man twenty miles from port pays only the same royalty as the man one hundred miles from port, who has to pay $2\frac{1}{2}$ times the railage paid by the first man. Any rate gazetted should be a fair average which the majority of sawmillers can afford to pay; but provision should be made for special reduction in the exceptional case of the sawmiller only a short distance from a port of shipment who is working in very inferior bush.

Another matter relating to gazetted royalty rates which is worthy of consideration is the ratio which royalty payable on hewn sleepers measured in the square should bear to the rate payable on round logs. At the present time double the royalty on round logs is charged on hewn sleepers measured in the square. The sleeper hewer does not obtain on an average more than a 25 per cent. recovery, and if the Department is to obtain the same from these logs as if they were milled, then four or at least three times the royalty in the round should be charged on hewn sleepers.

(c) *Permits issued under "The Forests Act, 1918."*—Royalty obtained from—jarrah, £11,222 6s. 10d.; sheoak, £60 6s. 5d.; banksia, £165 18s. 5d.; hewn jarrah sleepers, £2,393 12s. 4d.

When the effects of the lack of overseas orders became apparent, the policy of issuing no further permits for sawmilling purposes, except in the case of existing mills needing further supplies, was adopted. At the same time the issuing of permits for hewing export sleepers was stopped, and further hewing permits for the supply of sleepers to the Western Australian Government Railways were only made available by tender to persons actually holding orders for the supply of sleepers for local requirements.

The system of local auction of permits was extended until now the whole of the District Foresters have had experience in this form of sale. The result has been increased revenue and greater satisfaction among persons desirous of obtaining timber cutting rights.

(d) *Piles, Poles and Beams* (Royalty on Piles and Poles, £375 15s. 10d.; on Beams, £43 18s. 4d.)—The embargo on the export of round poles and piles cut from Crown lands controlled by this Department was continued. The cutting of such immature timber for local requirements was also reduced to a minimum. One source of piles and poles which might advantageously be exploited at the present time, if a market can be found, is the cut-over Karri bush. If powellised at the butt end to a height reaching well out of the ground an exceptionally fine class of straight, strong pole should be available from this source; but it is not likely to prove economical to powellise the whole pole, and before any move can be made, it will be necessary to provide special powellising tanks into which one end only of such poles can be dipped for treatment. In the case of cut-over mixed timber country in the Manjimup district carrying a limited amount of Jarrah, arrangements have been made with the State Saw Mills whereby poles and piles are removed prior to clearing for settlement and held until required.

2.—INSPECTION BRANCH.

(Inspection fees, £12,604 19s. 4d.)

Accompanying the recommendation concerning the new royalty rates put forward by Mr. Lane Poole was a recommendation that inspection fees be increased to four times the previous rate. This increased rate was gazetted with the new royalty rates already referred to on October 14th, 1921, and was strongly objected to by the Sawmillers' Association. In view of their representation, it was decided to reduce the rate to double the old rate, which was done by the Governor in Council dated November 23rd, 1921. Inspection fees have been collected at the rates of 0.6d. per cubic foot for sleepers and 0.8d. for other sawn timber for export, and 0.3d. per cubic foot for sleepers, and 0.4d.

per cubic foot for other timber for use within the State, these rates being subject to a discount of 15 per cent. if accounts are paid within the month in which they are rendered.

As the volume of timber to be inspected for export decreased, the services of several inspectors were dispensed with. This occasioned excessive travelling and consequent loss of time by the remaining staff. The inspection of sleepers for local Government railways can be carried out at regular intervals and does not demand the same urgent attention as inspection for export. In consequence, it was considered advisable to make the District Foresters responsible for inspection within their own districts, and, with this object, the reduced inspection staff was amalgamated with the ordinary district staffs. This alteration of system is on trial and is regarded as a temporary arrangement only, until such time as the export trade shall revive, when the urgent demands for immediate inspections which shipping imposes will possibly necessitate a return to the former methods of control.

Few complaints have been received concerning inspected timber, and the number of sleepers referred to has been very small indeed when compared to the total shipped. Buyers do not appear to realise that there is no law against shipping uninspected timber, and the document which is issued by this Department, and commonly referred to as a shipping certificate, has reference only to sleepers bearing the official brand of the Department. We use one type of brand exclusively, and the only variation is in small numbers which indicate the persons using the hammer and the year in which the inspection is made. As is distinctly set out on the so-called shipping certificate, we are not in a position to take any responsibility for timber which does not bear the distinctive brand of the Department. Sawmillers and contractors, however, have been warned that, if timber which has not been passed or has deteriorated by exposure or otherwise since inspection is noticed in transit, the attention of the buyer will be drawn to the fact that such uninspected or unsuitable timber is included in the consignment by endorsing a statement to that effect on the shipping certificate.

3. MINING TIMBER.

- (a) Royalty on coal-mining timber at Collie, £1,348.

The cutting of mining timber on a face in small coupes has proceeded satisfactorily at Collie and has been followed by fire protection and reforestation operations (*see* page 13).

- (b) License fees, £508 15s. 6d.
(c) Tramway rents, £715.

Although minor amounts for other licenses are included, the greater portion of the above sum was collected for licenses issued for the cutting of firewood for the mines on the goldfields. The license is still issued at the absurdly low fee of 3s. per quarter. Apart from a few hundred pounds received for rent in tramway permits under "The Land Act, 1898," no other revenue is derived from the huge firewood businesses operating around Kalgoorlie.

Far more effective control could be exercised over the cutting of firewood by big companies such as the W.A. Goldfields Firewood Supply Company and the Kalgoorlie-Boulder Firewood Company if they held a permit over certain country from the Department, and all their cutters were registered timber workers instead of independent units. The provision for the

cutting of mining timber ahead of firewood cutters and other similar matters, for which the company should be held responsible, would be thereby simplified. It is not considered advisable to introduce any alteration to the existing system of control during the currency of the present industrial agreement; but when this again comes before the Court, notification should be given of the intention of the Government to bring the cutting of firewood and mining timber by these big companies under the provisions of the Forests Act by requiring the company to apply for the issue of a permit.

4. SANDALWOOD.

(Royalty, £7,934 0s. 1d.)

The royalty on sandalwood remained the same as last year (*viz.*, £2 per ton); but the total collected was £9,719 less than for the previous twelve months. Owing to accumulated stocks in Western Australia and China, sales have been limited, and prices obtained by the men engaged in the industry have in many cases not paid for the cost of collection.

The Government have definitely decided against the control of the trade by the State. Other means of stabilising the industry are under consideration. Applications for the reduction of royalty below £2 have not been entertained, as it was considered that such action would not affect the demand nor help the cutter to obtain a better price.

5. FIREWOOD PERMITS.

(Royalty, £424 19s. 8d.)

Where the collection of firewood is an organised business on land over which the Forests Department exercises supervision, and more particularly where we are carrying out operations, the permit system has been introduced. Small permits, giving individuals or groups of individuals the exclusive right to dead firewood on a specified area, have been disposed of by local auction. Although the amount of royalty collected is very small the Department is able to exercise control over the actions of the permit holder and his employees, who take care to see that forest offences are not committed on the area held by them under permit.

6. REVENUE FROM OTHER SOURCES.

(£5,549 6s. 1d.)

This item includes the sale of £2,231 13s. worth of tuart from the mill at Wonnerup and £419 0s. 11d. for the sale of trees and seeds from Hamel, both of which items are dealt with elsewhere. Other items included are of minor importance.

III.—EXPENDITURE.

(Total Expenditure from all funds, £47,885 18s. 10d.)

1. ADMINISTRATION.

(Charged against Consolidated Revenue, £16,438.)

The amount is provided by Parliament on the same lines as other departmental votes. The amount voted for the year was £16,344, while the amount expended was £16,438. The excess of £94 was due to increased export trade in timber requiring extra staff to cope with the increased inspection work. In the middle of the year it was anticipated that an excess of £900

would be required, but the falling-off in the export trade enabled economies to be effected.

The State Nursery at Hamel is a charge against this vote, but the issue of trees at cost price means that the receipts, which last year amounted to £419, partially balance the expenditure of £587. Details of trees raised and issued will be found in Appendix 8, from which it will be seen that, of a total of 97,321 trees raised, 45,871 trees were sold at cost price, while 1,716 trees were issued free. In view of the large number of trees raised, the Nursery is most economically managed, and the Forester-in-Charge (Mr. A. Ken) is also deserving of commendation for the excellent condition in which all trees leave the Nursery. The general business of the Nursery has always been carried out on a cash basis, but certain institutions and persons known to the Manager have been in the habit of forwarding orders and settling for all trees received at the end of the season, or whenever accounts were submitted. At the end of the present financial year instructions were received from the Hon. Colonial Treasurer that in future the business must be conducted on a strictly cash basis. As this decision has increased rather than decreased clerical work, and caused considerable dissatisfaction, it has been recommended that the Manager be again given limited discretionary power in this connection.

2. REFORESTATION FUND.

Section 41 (2) of "The Forests Act, 1918," provides that three-fifths of the net revenue of the Department shall in every financial year be placed to a special account at the Treasury, and shall form a fund for the improvement and reforestation of State Forests and the development of forestry.

Gross Revenue of Department	£	88,530
Less—	£	
Administration Charges	16,438	
Interest and Sinking Fund on Loan	2,494	
Salary, Conservator	£622	
„ Act'g Conservator	£225	
	847	
Audit Fees	128	
	—	19,907
Balance	£68,623	

Three-fifths of this sum (viz., £41,174), together with sundry recoups to the fund totalling £371, and a balance of £5,781 from the previous financial year, made a total of £47,326 for the purposes set out above.

Of this, £28,158 was expended as shown in detail in Appendix 1B, and commented on hereunder, leaving a balance of £19,168 unexpended.

This balance has accumulated partly as a result of the lack of professional staff delaying certain developmental works and partly on account of the necessity of holding an appreciable reserve in view of the serious depression in the timber trade. As the volume of timber cut decreases, the receipts from royalties will fall, and the reforestation fund must suffer accordingly. If reforestation operations are to be effective, they must continue without interruption, and it is only by working on a reserve such as that which is being established that profitable results will be obtained.

(1). Working plan No. I.—Mundaring District. (Total Expenditure, £5,881.)

The Mundaring and Pinjarra Districts were reorganised in December, 1921, and the boundaries of the Mundaring District were made to coincide with those of the Jarrah Working Circle under Working Plan No. I.

An Assistant Forester previously attached to the Pinjarra District was made responsible for the policing and revenue collecting on all country over which control is exercised north of the Serpentine, with the exception of the Helena Block. A Forester was placed in charge of the Helena Block and made responsible for all operations on and adjoining this area. A Forester was simultaneously placed in charge of the reforestation and fire protection work on the Barton and Karragullen Blocks.

To secure efficient co-operation between these units, particularly during the fire season, head-quarters were established at Mundaring Weir, and an Assistant District Forest Officer appointed to the District. A junior clerical assistant, who also attended to the comparatively small amount of work requiring attention at the Mundaring Weir Post Office, was engaged, with a view to establishing a more satisfactory costing system and reducing clerical work in head office. It was found, however, that certain duplication was unavoidable, and that the services of the clerk were no longer warranted when the need for telephonic communication with look-outs and camps ceased at the end of the fire season. A more satisfactory method of keeping and transmitting cost of various work, however, was introduced throughout the whole service at the end of the financial year.

Silvicultural Work.—Regeneration cleaning operations were carried out over 2,667 acres, comprising compartments 30, 31 and 32 (1,530 acres), Helena Block, and compartment 111 and portion of compartment 106 (1,137 acres), Barton Block. The work consisted chiefly of ring-barking Marri and Jarrah which was over-mature or rendered valueless by fire. Various experiments were undertaken with a view to finding the most satisfactory method of ring-barking. The system adopted at present is to sap-ring the large trees, while any marri under 12in. diameter is girdled about 18 inches above the ground, and the bark bashed off up to that height. In many of the blanks thus created faulty advance growth has not yet been dealt with.

The cost of this work on the Helena Block amounted to 2s. 8d. per acre; on the Barton's Block to 3s. 4d. per acre. The higher cost on the Barton's Block was due to the greater number of interruptions to the work caused by men having to leave the job to fight fires. An attempt to utilise some of the over-mature and faulty jarrah trees which were being ring-barked on compartment 31 was made by having them cut and split into vine stakes, but, owing to the small demand for these posts, the work has been discontinued.

In order that officers of the Department and permanent workmen might understand thoroughly the principles underlying the group selection system applied to the jarrah forests, it was decided that the full gang should be employed on regeneration work on an area of cut-over bush, on which they were to carry out all operations, including the working up of mature trees into sleepers, the cutting of firewood, and the subsequent regeneration cleaning. Several

weeks were spent on this work before the same men were required to mark the trees which might be removed by sleeper hewers on the 1922 coupe on Barton's Block. The results were far from satisfactory, chiefly owing to the failure of the men to realise that the larger the tree the further they needed to look for members of the same group, and the tendency to remove a growing dominating tree for the sake of smaller suppressed trees around it. The men were put back to carry out all operations under stricter supervision on compartment 89, and an extensive sample plot was thus cleaned up. Measurements will be taken and the results obtained on this area carefully tabulated. This work will be carried out by a camp of apprentices during the coming summer. Further notes on the difficulties arising in connection with tree marking are set out under Silvicultural Notes (page 16).

Several extensive blanks in the ring-barked country in compartment 80 were cleaned up, and wattles (*Acacia pycnantha*) sown.

The acorns of cork oaks sown at Byfields last season showed splendid germination and developed well until towards the end of the summer, when the semi-wild horses started to congregate near the reservoir and by grazing and rolling on the alluvial patches on which these acorns had been sown destroyed practically the whole crop. The majority of these horses are valueless, and notes on legislation proposed to enable this nuisance to be controlled are set out on page 20.

Details concerning the planting of pines and the nursery work connected with it are given under Loan money expenditure on page 15.

Subdivision of the Area.

Roads.—No further road construction was undertaken, although there was a balance of £199 19s. 7d. paid in connection with work carried out during the previous financial year. The amount spent on maintenance was £94 19s. 5d.

Fire Control.—Operations were carried out over 120,000 acres, thus testing the economic feasibility of fire control over any extensive area of Jarrah country.

The capital expenditure undertaken in this connection is listed hereunder:—

	£
Erection and equipping of two lookout stations (including tower and hut)	546
Erection of approximately 25 miles of a telephone line connecting lookouts, forest stations, and head-quarters	731
Clearing of fire breaks, chiefly along telephone line	373
Hut and paddock (Barton's Forest Station)	157

The running expenses of the whole scheme amounted to £1,094, but a considerable proportion of the work included in this amount was devoted to permanent improvements, such as the clearing of tracks, the erection of numbered compartment corner pegs, etc. The fire control scheme extended over the Helena, Barton and Karragullen blocks, which together make up the 120,000 acres. The first Forests Department lithograph 1/80 was issued, showing the subdivision of this area into compartments.

The lookout towers were erected on Mount Gunjin and Mount Dale respectively, and manned constantly from the end of December to the middle of

April. The first fire occurred on 6th December and the last fire on 5th April.

The number of fires which owed their quick suppression to discovery by lookouts was 49 or 50 per cent. of all fires reported. Except during a very bad spell in March, resulting from the extensive burning on private property surrounding the forest at the end of the prohibited season under the Bush Fires Act, the lookouts were able to locate fires without difficulty, in many cases less than one quarter of an acre in extent, anywhere over the 120,000 acres. The fires not first reported by the lookouts were chiefly those along railway lines, which had on hot days when trains were running to be almost constantly patrolled.

The total number of fires reported was 89, details concerning which are shown on the scheduled statement hereunder:—

Area burnt.	Number of Fires.
0 - 1 acre	29
2 - 10 acres	34
11 - 20 "	6
21 - 50 "	12
51 - 100 "	4
Over 100 "	4
Total	89

Causes of Fires.

Mill locomotives	25
Government locomotives	20
Travellers	15
Hunters	9
Bush workers	9
Settlers burning off	7
Causes unknown	4
Total	89

The total area burnt amounted to 1,653 acres, being 1.4 per cent. approximately of the area under protection. The total cost of fire fighting amounted to £102 10s., being the time taken by departmental employees in travelling to and suppressing out-breaks. No additional labour was engaged. Further remarks will be found on page 17 concerning fires arising from preventable causes, and the future possibilities of fire control.

The money spent on fire breaks was £373 and was chiefly expended on partial clearing along the route of the telephone line between Mount Dale and Mount Gunjin. Experimental work has been carried out in the burning of breaks, particularly along roads, by setting a running fire in the bush on a still day, and thus burning a strip a chain or two wide without any preliminary clearing. This method has proved so successful that further cutting of fire-breaks is not considered necessary. Controlled burning of narrow strips where special fire hazards exist will be carried out by small gangs of forest workmen early in the season, before there is any real danger of the ground fire getting out of control. The only clearing done on these breaks will be the lopping of blackboys.

It was found that the utility of patrols riding constantly through the protected areas largely ceased after the first four or five weeks of the fire season, for by that time bush workers and adjoining settlers had all been visited and warned concerning the pro-

visions of "The Bush Fires Act, 1902," and the necessity for exercising care in the use of fire in the open. The men were then taken off patrol and employed, when not required for fire fighting, on effective forest work.

Although telephonic communication was established at the beginning of the fire season between fire lookouts and headquarters, heliographs proved of very considerable value. A system of simple code signals was drawn up, and all employees received instructions in Morse and the use of the heliograph. Patrols and camps of workmen were able to maintain almost constant communication with lookouts by the use of these instruments.

Fuller particulars concerning the inauguration and operations of this scheme of fire control are given in a paper prepared for presentation to the Brisbane Interstate Forestry Conference, a few copies of which are still available for distribution to persons interested.

(2) *Working Plan No. II.—Tuart Working Circle.*
(Total Expenditure, £9,620.)

(a) *Forest, £2,722.*

Silvicultural work.—The annual coupe from which the full permissible annual cut was removed extended over compartments 18 and 19. Trees were marked, and two fallers for the mill worked under the control of the forester. The tops of fallen trees were lopped where necessary and thrown clear of growing timber. The forester also controlled bullock haulage of logs to the mill. Although the team was increased to 14 bullocks and both day labour and contract work tried, haulage proved costly and unsatisfactory. Many difficulties arise with only one team on a job, which would be more quickly and easily surmounted if extra power could be obtained in an emergency. Inquiries are being made into the cost and efficiency of caterpillar traction for the purpose.

A comparatively heavy seeding is indicated during the coming year by the presence of buds, and more silvicultural work in the nature of opening up blanks at present occupied by useless trees will be carried out during the coming year.

Grazing.—During the year £1,334 was spent on fencing. One large contract for approximately 20 miles of boundary fence was completed, and other minor lengths of fencing were erected by day labour.

Water was provided in two paddocks by shallow dams and one well sunk, and a 1,000 gallon jarrah tank erected on a stand.

Farmers occupying holdings adjacent to the forest were given opportunity to take up farmers' grazing leases not exceeding 200 acres in extent for a term of five years. The lessee is required to erect any subdivision fences necessary and make provision for water at his own expense.

After these farmers' grazing leases had been adjusted, grazing rights over the remainder of the fenced portion of the forest, which consisted of four separate paddocks, were sold by auction. A twelve months' grazing lease of these fenced paddocks, each of which is provided with a permanent water supply, was granted to the successful bidders. Prices obtained were most satisfactory and, as the grazing improves with protection, it appears probable that the return from this source alone will provide interest and depreciation on the cost of fencing.

Fire.—The only fire which entered the plantation burnt about twenty acres of grass. This fire escaped from private property adjoining the forest, and a

conviction was obtained against the owner for not exercising proper supervision over burning operations on his own property.

External fire breaks have been maintained and the economy of covering these breaks with couch grass, where possible, is being tested.

Accommodation.—One forest workman's house was erected at a cost of £348, and another is in course of erection.

(b) *Mill, £6,898.*—The manager of the mill resigned in July, 1921, and in the following month Mr. J. Coxon was appointed to the position.

Since that date Mr. Coxon has effected many improvements, at the same time maintaining cutting operations on a restricted scale. The cutting of the annual possibility of the forest has extended to the end of the financial year, and it has been decided to continue immediately with the cutting of the 1922-1923 coupe. The loads of square timber cut and despatched to the Government Railway Workshops, Midland Junction, amounted only to approximately 270 loads.

In addition, a considerable volume of short ends and off-cuts have been stacked at the mill with the object of utilising them subsequently for wheelwright and general turnery purposes. Various markets for small size tuart are being investigated, and endeavours made to interest private enterprise in the work of converting this timber into marketable articles.

The balance-sheet of the mill will be found in Appendix 1E. It will be seen that the total loss made up to the end of the financial year amounted to £1,839 1s. 7d. The end of the year marked, however, the completion of the mill improvements, and each month now there should be a marked improvement in output and cutting costs. The limit imposed on the output of the mill is not now what the mill can cut, but the volume of the timber which it is permissible to cut from the forest under the Working Plan. Therein lies the essential difference between this mill and an ordinary sawmilling proposition, which pays no attention to the forest, but only to the monthly tally.

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

Total Expenditure: From Reforestation Fund, £1,066; from Mining Leases Royalty Account, £965.

Section 39, "Forests Act, 1918," provides that royalty paid by a mining lessee for timber removed from a mining lease may be credited to a special fund and expended in the work of improving the forests on such leases and holdings. This clause has been brought into operation in the Collie Coalfields Working Circle, but the revenue so derived is not sufficient for the work awaiting attention, and an additional £1,066 was drawn from the Reforestation Fund.

The Working Plan for the Collie Coalfields Working Circle received the approval of the Governor in Council on 7th September, 1921.

Silvicultural Work.—A regeneration cleaning was carried out over 80 acres, at a cost of 13s. 2d. per acre. The reason that such a small area was treated was owing to the difficulty of disposing of windy and crooked trees, suitable for milling. A permit has been granted for the cutting of this timber, but, owing to the slump in the timber trade, no operations have been started in connection with it. The total area now clear felled and closed for regeneration is 212 acres.

Approximately, 100 acres of sandy flat have been cleared according to three different specifications. Sixty-five acres for broadcasting were ploughed at a cost of £1 2s. 6d. per acre, the work being well done by a double furrow stump-jump plough, drawn by three heavy horses. Of the above area, ten acres was sown with 8lbs. of *Pinus palustris* seed to the acre, and 55 acres was sown with 5lbs. of *Pinus pinaster* seed to the acre. The remainder of the area was planted with the following trees:—

Species.	Number planted.	Distance apart.
		Feet.
<i>Pinus pinaster</i> ...	7,750	5 x 5
Do. ...	8,250	4 x 4
<i>Eucalyptus corynocalyx</i> ...	4,025	4 x 4
Do. <i>globulus</i> ...	4,420	5 x 5
Do. do. ...	3,500	4 x 4
Do. <i>goniocalyx</i> ...	1,050	5 x 5
Do. <i>pitularis</i> ...	600	5 x 5

Despite the fact that these trees are to be grown on a short rotation for mining timber, the spacing appears somewhat too close and will be increased next year. Planting costs were also high, owing to the matted roots of indigenous shrubs, and the economy of ploughing strips before planting will be tested next year.

The results of experimental work started during the previous year showed that before broadcasting *Pinus pinaster* it was necessary to plough the soil. Dibbling has been an absolute failure owing, presumably, to the matted roots of the surrounding vegetation taking possession of the small patch of disturbed soil. It was further noted that on the ploughed ground the first year seedlings survived in greater numbers under the shade of green or ring-barked trees.

Nursery Work.—28,000 *Pinus pinaster* seedlings were raised in nursery beds in the arboretum, 16,000 were planted out, and 12,000 were lined out in nursery lines for planting next season. 5lbs. of *Pinus pinaster* seed and 8lbs. of *Pinus palustris* seed were sown.

Grazing Control.—The system of issuing grazing licenses to owners of one or two cows for a fee of 5s. per annum, and providing the cows so licensed with a disc, has been fairly successful. Owners of larger herds have been required to take up grazing leases over a specified area and either fence or tend the herds. These restrictions have reduced the number of stock running on the State Forest by half, and caused the owners to be much more careful in the use of fire.

Number of owners of registered cattle	108
Number of cattle registered	156
Number of grazing leases taken up ..	4

Fire Control.—The result of the past season's fire control measures has been highly satisfactory, considering the organisation, which consisted of one forest workman, patrolling the area and communicating periodically with the District Office by telephone from the various mines and post offices. The success obtained has been largely due to propaganda work by lectures and the enthusiasm of local officers, which has carried conviction and won much local support. The help accorded the Department by the Collie

Forest Protection Society and the Boy Scouts has been greatly appreciated. Many local residents have done the Department a good turn by reporting fires which have come under their notice.

Now that efficient fire breaks have been cleared along main roads, radiating from Collie, fire break specifications have been reduced and the work cut down. The success of the lookouts in the Mundaring District has indicated economies, which may be effected in the Collie District, by the introduction of this system, and a detailed report on the subject is now in course of preparation.

890 chains of fire break, one chain wide and 461½ chains half-a-chain wide, were completed, making a total for the Working Circle of 22 miles 56 chains of one chain breaks, and nine miles 1½ chains of half-chain breaks. The area enclosed by firebreaks during the past season was 2,500 acres. The amount burnt was 10 acres, caused by one fire which was quickly suppressed after being reported.

An attempt was also made to suppress and prevent fires over the whole Working Circle of 35,000 acres and an adjoining area of Crown Lands, known as the Lucknow Concession (12,000 acres), carrying some very fine regrowth. Of this area of 47,000 acres, 695 acres only were burnt by 59 fires, particulars of which are given hereunder:—

Cause.	No. of fires.	Total Area burnt.	Remarks.
Mill locomotives ...	5	50 acres.	Only one mill line traverses State Forest No. 4 for a few miles (Bunning Bros., Lyall's Mill).
W.A. Govt. Railway locomotives	12	75	Mainly due to Railway Department doing no break clearing or burning during year.
Travellers along roads	25	200	Due to carelessness of smokers.
Timber workers ...	3	120	Fire set to burn up under growth for easier working.
Fires escaping from adjoining pastoral leases	8	200	Numerous leases under "Land Act, 1898," surround this Working Circle.
Holiday campers ...	6	50	Caused by youths fishing in Collie River weekends and holidays.
Totals ...	59	695	

Timber Tests for Durability Underground.—The general result has been that powellised jarrah and karri have proved remarkably durable when compared with unpowellised specimens placed in the mines at the same time. Unpowellised jarrah has been badly attacked by a type of dry rot, while unpowellised karri crumbled with handling.

(4.) Education of Apprentices, £2,965.

The erection of the school in the tuart country, at Ludlow, absorbed £1,302 18s. 3d., in addition to which £217 13s. 3d. has been expended on equipment and furniture. The school was in session for the latter six months of 1921, under the charge of Mr. R. H. Davey, B.Sc.

During the remainder of the year the boys were employed in the forest, chiefly on effective work. The running costs, including salaries and allowances to Instructor and boys, amounted to £1,444 10s. 11d.

(5.) *Sandalwood Propagation*, £280.

Experimental work inaugurated during the previous year at Bendering gave the following results:—

1. Good germination is obtainable from fresh nuts without any treatment. Cracking and soaking tend to destroy power of germination.
2. Nuts lose power of germination after being held for a couple of years.
3. Rabbits will bite off the tops of first year seedlings, when there is no grass or green feed available at the end of the first summer.

These results were confirmed by germination tests at Hamel.

The reserve at Bendering includes only two relatively small patches suitable for sandalwood, and, in view of the comparatively low rainfall, it was hoped to find a larger area of suitable Crown lands further west. Exhaustive investigations, however, failed to reveal suitable country, and consequently further work has been carried out on the larger jam patch on the Bendering reserve.

Sandalwood nuts were dibbled in at intervals of 9 feet by loosening the soil with a small hoe and burying two nuts in each disturbed patch. The area suitable for planting amounted to 220 acres. A rabbit-proof fence was subsequently erected around this area.

(6) *Publicity and Popular Education.*

In centres where fire control measures have been inaugurated popular lectures explaining the objects and methods of working employed have been given, and posters have been displayed.

A Primer of Forestry for use in elementary schools throughout the State has been printed by arrangement with the Education Department and is now in use.

The distribution of leaflets dealing with our timbers and the sale at cost price of books dealing with our forests and forest products has been continued.

(7) *Arboreta.*

An arboretum has been established on five acres of land on the banks of the Collie River on the outskirts of the town. Small plots about one-tenth of an acre in extent have been sown with 17 different species under forest conditions, while single specimens of 37 species have been planted with wide spacing.

Areas have been cleared and fenced at Donnybrook and Nannup for the same purpose, and trees raised at Hamel for planting out this year.

3.—AFFORESTATION.

(Charged against General Loan Funds—£2,324.)
Purchase of land.—£80.

Pine Planting.

(a.) *Ludlow Plantation*—£636.—During the year 96 acres were dealt with. The timber on this area on the north side of the plantation had been pulled by the tractor in about 1915. Practically the only attention it had received since that time was to put a running fire through it as frequently as it would burn. The remaining logs were heaped and burnt

and the area sown as follows: 32 acres (Compartment 8) were ploughed and 4 lbs. of *Pinus palustris* seed to the acre drilled in; 9 acres were ploughed and *Pinus palustris* seed broadcasted; 55 acres (Compartments 7 and 9) were cultivated and broadcasted with 6 lbs. of *Pinus pinaster* seed to the acre.

25 lbs. of *Pinus palustris* seed were sown in nursery beds.

During the previous year 52 acres (Compartments T, S, and R) were broadcasted with *Pinus Pinaster* and showed satisfactory germination. 95 lbs. of *Pinus pinaster* seed which was sown in the nursery during the previous year showed satisfactory germination. The whole of these seedlings are being lined out in the nursery to be planted next year as 1 + 1 transplants.

(b.) *Mundaring District*—£1,382.—The object of work undertaken up to the present has been to utilise for the growing of softwoods cleared farm lands on the banks of the reservoir, which are at present lying idle.

Three temporary nurseries have been ploughed and fenced.

Autumn Nursery, Greystones.—12 lbs. of *Pinus insignis* seed was sown in nursery beds at the end of May, 1921. At the end of January there were 51,600 plants, while the number surviving at the end of April were 49,272 plants. The seedlings in the beds first sown showed good growth, but were too thickly sown. They were considered, however, sufficiently sturdy for planting out. 28,500 seedlings were planted out on 32 acres on cleared hillside adjacent to the nursery before 30th June. The cost of planting was £4 7s. per acre. One man was found to be able to pit plant 220 trees per day. Further planting continued after the end of the financial year. The seedlings too small for planting out are to be bedded back.

Eighteen pounds of *Pinus pinaster* seed was sown in this nursery during June, 1921. The number reported available for planting out at the end of April, 1922, was 14,500, while an equal number were only fit for lining out in nursery rows. Owing to experience in other centres in the planting out of *Pinus pinaster*, it was decided to line practically the whole of these seedlings out in nursery rows, as seedlings of this species when planted out have difficulty in surviving the first summer.

Fourteen pounds of *Pinus insignis* seed were sown in the nursery at the end of May, 1922.

Spring Nursery, Greystones.—An area of moist land adjoining a swamp was chosen as a spring nursery, and fourteen pounds of *Pinus insignis* seed was sown in September, 1921. There was a splendid germination, but the cultivation of the soil brought salt to the surface, and the extreme salinity either killed or stunted the growth of practically the whole of the seedlings. A few plants were obtained from this nursery, which has had to be abandoned.

Byfields Nursery.—This nursery has been ploughed and fenced during the past year. Sowing commenced at the end of May, and the following seed was sown:—

<i>Pinus pinaster</i>	.. ..	24 lbs.
<i>Pinus insignis</i>	.. ..	14 lbs.
<i>Pinus palustris</i>	.. ..	¼ lb.

Considerable trouble has been experienced in this temporary nursery owing to destruction of seed and young plants in the cotyledonary stage by birds

(chiefly squeakers and magpies). Nothing appears to frighten these pests, which work their way along the rows picking out each seed or young plant. So serious is the destruction that it may be necessary to concentrate work in large nurseries where one or more men can be employed constantly and so frighten off the birds as soon as they alight on the beds.

(c.) *Lake Gnangara*.—The experimental work on sandplain country north of Perth has been continued. Owing to delays in clearing and ploughing the sowing of seed was regrettably late this year. It was decided to experiment with sowing of ploughed land from which the natural tree growth had been removed or destroyed to a varying degree on a number of plots, totalling in all 20 acres. As by 1st July only 15 acres were ready, these were sown with about 7 lbs. of *Pinus pinaster* seed to the acre. Some 2,000 *Pinus pinaster* transplants from Hamel were also to be planted out.

The results of experiments in the broadcasting of *Pinus pinaster* in this locality have been similar to those obtained further south. A preliminary ploughing of the area to be sown appears essential, but the results obtained from the areas sown in 1921 were adversely affected by the fact that there had not been a clean burn obtained prior to ploughing. When inspected at the end of January, 1922, the plants from seed broadcasted in 1921 were about 1½ inches high, and the average number of seedlings per acre was about 4,000. Transplants from Hamel planted out at the same time had in very many instances had their tops bitten off by browsing animals, which generally resulted in the death of the plant.

If, as is suggested by experiments at Collie, the sparse crop of banksia, scrub jarrah, and coastal blackbutt at present growing on this area has a value when rung in sheltering the young pines during the first summer, it may be possible to proceed with the establishing of a plantation on this country without waiting for favourable opportunity to organise a firewood business for the utilisation of the existing crop of trees as set out in the original scheme.

IV.—PROGRESS OF WORKING PLANS.

Owing to the lack of professional assistance, no further working plans were prepared. Working Plan No. III., prepared during the previous year, received the approval of the Governor in Council on 7th September, 1921.

The appointment of two assistant district forest officers has made possible the collection of further necessary data in connection with—

- (1) The preparation of a completed Working Plan for the Mundaring District: A Planting Plan dealing with vacant farm lands and other cleared country in the immediate vicinity of Mundaring Reservoir has been drawn up and approved. A Stock Map of the Helena, Barton, and Karragullen Blocks is in course of preparation, by which the marking of coupes, and the carrying out of silvicultural work will be organised so that the most heavily cut over areas will receive treatment first.
- (2) The inauguration of a Working Plan for the Collie District is contemplated. It is evident that fire control measures and the

general supervision of cutting can be extended over a larger area than the present Collie Coalfields Working Circle without any very considerable increase in overhead expenditure. It is intended that less intensive operations shall be undertaken on prime jarrah country adjoining the coal mining leases which is at present being worked over for the second and third time by sawmills.

V.—SILVICULTURAL NOTES.

1.—NATURAL REGENERATION OF JARRAH.

Recent observations at Collie have shown that more satisfactory natural regeneration of jarrah may be expected on unburnt country with a covering of scrub and *debris* than on patches of exposed mineral soil. Plentiful germination will frequently occur, and is more easily seen on bare patches of ironstone gravel. During the first summer, however, the seedlings which are scarcely past the cotyledonary stage are shrivelled up in thousands, while those growing amid *debris* survive the hot weather. Loose soil or a thick bed of ashes may similarly serve to protect the seedling from the most severe effects of summer.

2.—TREE MARKING.

For many years past the cutting of jarrah on leases and permits has been restricted to the removal of trees measuring over 90 inches in girth at a height originally of 3 feet, but now 4 feet 3 inches above the ground. A minimum girth system has obvious faults, but it *does* succeed in saving immature timber for future cutting. In dealing with the jarrah bush under existing conditions, the system is not so faulty as it may appear, for the following reasons—

- (a) A faulty jarrah tree under size does not deteriorate rapidly. Although it may not be putting on normal increment, any decrease in value is very slow.
- (b) The amount of regrowth of appreciable value is very limited and a faulty tree removed does not mean under existing conditions that one or more sound saplings will take its place.

Other factors, however, need to be considered, and it may be economically advisable to remove both mature and faulty timber from certain bush while transport by timber tramways laid into such area is available.

With the object of assisting permit holders, tree-marking by employees of the Department was started in several districts. The result was that permit holders removed the best of the marked trees and left standing the faulty trees which could be removed without affecting the future crop. It practically amounted to the removal of minimum girth restrictions without any compensating advantages in the utilisation of faulty undersize timber.

Tree marking was stopped in all districts. Before it can be undertaken as a general practice in this State, much better training will have to be given to the staff and stricter supervision will be essential. The permit holder will have to reduce in many districts the standard of logs to be sawn and be willing to clean up one coupe completely before moving to fresh bush. If the bush is to benefit, fire control measures will have to be in operation.

3.—INTRODUCTION OF EXOTICS INTO THE BUSH.

With fire protection, there are certain valuable exotics which show every indication of spreading naturally through the jarrah bush, and growing in mixture with indigenous species to mutual advantage.

Acacia pycnantha (South Australian Golden Wattle), which is probably the most valuable of all tan bark wattles, develops rapidly and seeds freely both on the better soils of the coastal plain and on ironstone gravel in the Darling Ranges. The seed from very young trees (5 years) is fertile and plentiful regeneration around mother trees is common.

Pinus pinaster seeds and regenerates freely after the 16th or 17th year on the coastal plain south of Perth.

There is a most interesting area a few acres in extent under a mixed crop at the Hamel Nursery, which was established about 20 years ago. The area was cleared, ploughed, and a quantity of jarrah and *Pinus pinaster* seed sown. No fire has run through the area since, and although all species of woody shrubs common to the bush have sprung up in great numbers, the density and height of undergrowth is less than on an adjoining plot which is burnt practically every year. A large percentage of the jarrah is forked low down for some unknown reason, but there are sufficient good saplings to form the final crop.

The two species are now approximately of the same height, the jarrah ranging from 40 to 50 feet, and the *Pinus pinaster* from 40 to 45 feet. The number of *Pinus pinaster* arising from the original sowing was small, but the scattered trees began shedding fertile seed in about the sixteenth year, so that there is now under the Jarrah a crop of *Pinus pinaster* seedlings from the first seeding four to seven feet high, from the second seeding two feet high, and from the third seeding six inches to one foot high. Certain faulty jarrah will be removed to allow the development of this second generation of pine. Although jarrah commenced to flower several years ago, there is no sign of jarrah seedlings.

Other species have found their way into this fire protected area from adjoining plantations. The different seedlings of an adjoining plantation of *Pinus halepensis* are represented by numerous seedlings, ranging from one to eight feet in height. *Acacia pycnantha* has come in, although the nearest trees were five chains away. The first one or two trees have been seeding freely for a number of years until now numerous trees of all sizes from one to 30 feet are to be found.

The rate of growth of wattles at Hamel is phenomenal, and some measurements made recently and set out hereunder are interesting:—

Species.	Age in years.	Diameter at 3 feet above ground in inches.	Height in feet.
<i>Acacia pycnantha</i>	...	inches.	feet.
Do. do.	1	...	4 to 5
Do. do.	2	2	9
Do. do.	3	3½	15
<i>Acacia decurrens</i>	...	3½	15 to 18
Do. do.	3	11	42
Do. do.	9	11	42
<i>Acacia dealbata</i>	...	...	6
Do. do.	1	2	11
Do. do.	2	2	11
Do. do.	3	3	13
Do. do.	...	3	13
Do. do.	18	54	50

VI.—FOREST PROTECTION NOTES.

Details of the fire control work carried out during the past season are given in Chapter III., dealing with the expenditure under the various Working Plans.

The main forestry problem confronting the Department is the regeneration of the cut-over jarrah bush, which present practices threaten to convert into unproductive waste land. The first essential is the control of fires, and experience during the past season has shown that this is economically possible.

Fierce fires in difficult jarrah country with a dense growth of blackboys have been suppressed, and a large number of fires prevented from developing over a considerable area of country.

Of the 89 fires which were reported and suppressed on 120,000 acres of jarrah country in the Mundaring district, 50 per cent. were due to locomotives. The use of spark arresters and burning of breaks along railway lines should remove practically all danger from this source. Of the remaining 50 per cent., popular education and the support possible from the amendments to "The Bush Fires Act, 1902," suggested on page 20 should reduce the number very considerably.

Practically all fires in this country are due to preventable causes, and the fewer the fires started, the cheaper will be the fire control.

Based on our limited experience it would appear possible to build up the necessary organisation and fit up the plant needed for the fire control of any extensive area of jarrah country, at a capital cost amounting to approximately sixpence per acre. This cost includes provision for houses, huts, lookouts, telephone line, and clearing tracks to be used as roads. The annual running costs it is estimated will amount to approximately one penny per acre, which will be expended on the necessary works in the following percentages:—

Propaganda and popular education—5 per cent.
Preliminary work of burning tops, firebreaks, etc.—15 per cent.

Patrol work—10 per cent.

Lookouts—50 per cent.

Fire fighting and suppression of fires—20 per cent.

These figures indicate what can be done, and will be done at some future date when the objective of the Department has the sympathy and co-operation of the public. The greatest factor in determining the length of time before a general scheme of fire control can be inaugurated and economically administered is public opinion. The Department will proceed to extend as rapidly as possible the areas protected, and simultaneously steps will be taken to prevent big fires in the remainder of the bush.

The sympathy of all bush dwellers is assured in any measures which aim at the prevention of the fierce fires which do obvious damage to standing timber. It is hoped by arrangement with certain sawmillers during the coming season to test the cost of burning, during early spring, the tops of trees lying on the ground after the fallers have been through the bush. In carrying out this work it will be necessary in some cases to drag the limbs and smaller branches of fallen trees clear of sound young timber amongst which they have fallen.

Another direction in which it is intended to seek the co-operation of sawmillers is the employment of certain of their gangs on fire fighting in cases of

emergency. The time thus spent will be paid for by the Department, who will recoup either the company concerned or the men direct. It is obvious that the Department will never be in a position to retain sufficient men throughout the country to do all the fire fighting necessary over extensive areas; but if organised bush workers represent a potential fire fighting force, the whole problem will be greatly simplified.

VII.—RESEARCH AND INVESTIGATION.

Expenditure £2,231.

1. FOREST PRODUCTS LABORATORY.

The total subsidy paid to the Commonwealth Forest Products Laboratory during the year amounted to £1,500. It was arranged that this sum should be devoted to the following lines of investigation—

Wood powellising	£200.
Marri kino	£650.
Tannin survey	£400.
Paper pulp	£250.

The treatment which this Department has received from the Director of the Institute of Science and Industry, who seeks to control this Laboratory from Melbourne, has not been altogether satisfactory. The method of control, or working of the Laboratory, does not concern the State Government as long as results are achieved and information made available. It is known that results have been achieved, but it has been most difficult to obtain from the Director either detailed or prompt information on any subject.

The commercial possibilities of the preparation of a tannin extract from marri kino is a subject of great importance to this State, in view of the inexhaustible supplies of raw material on Crown land. In December, 1920, a leather chemist, Mr. H. Salt, M.Sc., A.I.C., was brought out from England to investigate the problem, and by December, 1921, had brought his work to a satisfactory conclusion, and his report was forwarded to Mr. Knibbs. Long delays connected with the taking out of a patent for the process by the Institute of Science and Industry have occurred, and after repeated applications for information on the subject, a definite reply was received in August, 1922. The information then made available was only a copy of an article on the process which had been prepared for several semi-technical journals. A short description of the patent process is contained in Appendix 11.

The actual tanning material is very similar to the extract obtained from Quebracho wood, which supplies a very big demand at the present time. The preparation of the extract from the crude marri kino is a most economical process, as the kino is obtained mixed with fragments of bark and has not to be leached out of the actual fibre, thus eliminating the first process necessary in the preparation of most tannin extracts and enabling a more concentrated solution to be used in the cooking with sulphites.

The unknown factor at the present time is the yield of kino obtainable per tree and per hundred acres, and the cost of collection on a large scale.

As mentioned in last year's annual report, a limited amount of research work on the cause and

origin of the flow of kino from marri trees has been carried out by the writer. The conclusions arrived at are that the development of gum veins is a pathological phenomenon, resulting from the exposure of the cambial region of the tree to the atmosphere. The primary cause of the great majority of kino exudations was found to be the borings of larvae of the species *Phorocantha tricuspidis*, Newm., var. *gigas*, Hope. Other specimens have been referred to the species *Tryphocharia hamata*.

There is every reason to believe that a plentiful flow of gum may be secured by artificial tapping, although no great measure of success has been secured by experiments carried out during the past year. Auger holes and axe cuts through the bark have led to the formation of gum veins, but very little flow has resulted, owing to the rapid occlusion of the exposed young tissue. More satisfactory results should be obtained by taking fine shavings from a wound which just penetrates the woody tissue, at intervals of about a week during certain seasons of the year. The flow of kino appears to occur during the growing season in spring and autumn. Experiments on the lines suggested are now being carried out. Fire protection will prove a considerable factor in increasing the quantity of kino normally available, and enable it to be collected in a much cleaner condition.

(a) *Tannin Survey*.—£400 has been contributed towards a tannin survey of the State, and supplies of likely raw material have been forwarded to the Laboratory by the Department, until now 150 species have been tested. The only results received from Melbourne up to the present are again in the form of a press article, but it is hoped that more detailed information may be available in time for publication as an appendix to this report.

The most interesting results obtained in this investigation, when the quantities of raw material available are taken into account, as well as the tannin content, are the three referred to hereunder.

The bark of the karri (*Eucalyptus diversicolor*) has been used in local tanneries, and the laboratory tests show that the percentage of tans varies from 18 per cent. to 21 per cent.

A syndicate have obtained certain rights for the utilising of the large quantities of karri bark which are now destroyed in connection with the operations of the State Saw Mills at Pemberton.

Gimlet (*Eucalyptus salubris*) which regenerates freely in dense clumps in the drier portions of the wheat belt and the Eastern Goldfields, gives yields of soluble tans from the bark ranging from 16 per cent. to 18 per cent.

The highest yield of excellent quality extract has, however, been obtained from ridge gum of the North-West (*Eucalyptus alba*). The bark of this species yields 33 per cent. of soluble tans, and has been used for some time past on Moola Bulla station by the North-West Department. Applications have already been received for two permits for the stripping of ridge gum bark from areas in the North-West, but no action has been taken pending the return of the Head Forester from a visit of inspection of that portion of the State.

(b) *Paper pulp*.—Promising results in connection with the utilisation of Western Australian hardwoods for the manufacture of paper pulp have been obtained.

Karri and marri (*Eucalyptus calophylla*) have given excellent results. It is encouraging to note, in view of the freedom with which both these species regenerate and the rapid rate at which they develop in the same districts, that the kino already referred to which occurs in the timber of marri is no detriment to the use of the wood for paper pulp purposes.

The experimental work in connection with the paper pulp investigation branch of the Forest Products Laboratory is now being carried out on a semi-commercial scale at the Geelong Paper Mills. As no paper making plant was operating in Western Australia, it became necessary to transfer this activity of the Laboratory temporarily to Melbourne.

(e) *Wood powellising*.—No further reports have been received.

Although relations with the Institute of Science and Industry have been unsatisfactory, it is hoped that the statement hereunder made by the Right Honourable Prime Minister to a deputation representing the University and the sawmilling interests which he received on the occasion of his last visit to Perth (19th April, 1922) will considerably clarify the position. Mr. Hughes said:—

I will do everything I can to see that this laboratory, which has done good work, is not side-tracked by any fanatical attempt to centralise things in Melbourne. . . . I sympathise with you entirely, and I will support you as far as the finances of the Commonwealth will permit.

2.—KILN DRYING OF TIMBER.

The amount expended by this Department was £202, but the work was subsidised by the State Saw Mills to the extent of £682. During the past year the kiln at Crawley has been constantly in operation under the charge of Mr. S. A. Clarke, B.Sc.; and attention has been chiefly centred on the drying of karri.

From the fact that it is not possible to season tangentially cut boards in the open air without serious loss, some idea of the magnitude of the problem will be conceived. A definite scheme of research has been evolved and progress along the lines set out has taken place, to such a stage, that it is hoped in the near future to be able to give the exact conditions necessary for the successful drying of karri by modern rapid methods.

A noteworthy event was the visit of Mr. H. D. Tiemann, M.E., M.F., of the United States Forest Products Laboratory, who reported on the drying position in this State for the Saw Millers' Association. His remarks after inspecting the various seasoning plants, that the kilns erected here compare very favourably both in construction and operations, with those in any other part of the world, certainly demonstrate the value of the work carried out by the Department. Unfortunately, the general public are extremely apathetic towards the question of using only thoroughly dried timber for high grade work. The present practice of using insufficiently dried material not only results in loss to the manufacturer and the consumer, but also the market for the local timbers is destroyed, resulting in preference being given to the imported article. Practically every fault occurring in a wooden article after making up can be traced to insufficient drying.

Karri is practically unknown as anything but a structural and sleeper timber at present. As a result of the research which is now nearing completion, it is hoped that, in the near future, karri will take the

place on the market it deserves, as a valuable timber for furniture, flooring, and interior fittings. When it is remembered that karri is a stronger wood than jarrah, and that it can be obtained in large sizes of even texture and colour free from blemish, it will be realised that the value and utility of the timber can be greatly increased by proper seasoning.

3.—BOTANICAL INVESTIGATION.

The amount expended on this branch of investigation was £323.

Great progress has been made during the year. Collecting has been carried out over the greater part of the State, chiefly in the Kimberley and Great Southern districts. The botanical collector (Mr. C. A. Gardner) was away with the Lands Department Exploring Expedition in the Kimberleys until November, and the collection made there, consisting of 345 specimens, has revealed many interesting trees previously unknown to this State. While this tropical collection which has so enriched the Herbarium is representative of all kinds of plant life found there, the South-Westerly specimens are chiefly of interest from a forestry standpoint, being almost completely composed of woody species.

Twelve new species have so far been named out of the year's collection, but many are still unnamed owing to the inaccessibility of the literature dealing with this subject. 577 species have been added to the Herbarium, bringing the total up to 1,720—almost half the entire flora of the State. Of the former, 517 have been identified.

Forty-eight samples of bark and fruits have been submitted to the Forest Products Laboratory for analysis of their tannin contents, and in the majority of cases the results have proved very satisfactory.

Thanks are due to Mr. J. H. Maiden, Curator of the Sydney Botanic Gardens, for the assistance he has rendered in clearing up the identity of many of our Eucalypts and Acacias; also to Mr. Herbert, the late Government Botanist, and Miss Prowse, the Acting Government Botanist, for having so kindly afforded access to the Herbarium of the Agricultural Department. A list of the species collected and named is given in Appendix No. 7.

4.—ENTOMOLOGICAL INVESTIGATION.

Problems relating to forest entomology have been referred to the Agricultural Department, and thanks are due to both the Government Entomologist (Mr. L. J. Newman) and the Assistant Entomologist (Mr. J. Clark) for the assistance given to the department.

Attention has been devoted to the investigation of life histories of forest insects of economic importance, rather than to systematic work, but results are not yet sufficiently advanced to justify publication.

The interest of members of the field staff in the subject has been awakened by the issue to District offices of cases of specimens, and information on the subject of the more important insects has been supplied to field officers by Mr. J. Clark.

5.—GROWTH INCREMENT INVESTIGATIONS.

Five acre sample plots established in various districts in 1916 and 1917 have been maintained and remeasured.

A calculation based on the rate of growth of dominant jarrah trees on four sample plots yielded the following results:—

District.	Description of bush.	Total Number of trees per acre.	Dominant trees per acre.	Range of girth.	Average annual girth increment.
Donnybrook	Cut - over jarrah	200	27	10in. to 90in.	.52in.
Do. ...	Virgin jarrah	50	7	90in. to 150in.	.49in.
Do. ...	Cut - over bush	130	20	10in. to 150in.	.33in.
Collie ...	do.	147	22	10in. to 70in.	.59in.

The irregular tracks cleared around the plots failed to keep fires out and all the plots were burnt between the two measurements. Steps have now been taken to clear more effective firebreaks.

The low average annual girth measurement did not seem to vary directly with the size of the tree, but this would hardly be expected when the short time between the measurements and the abnormal conditions of the bush are taken into consideration.

The above summary adds weight to the contention that the constant firing of the bush is slowing up the rate of growth of indigenous timbers, especially jarrah.

The figures obtained from the 5-acre sample plot established in the cut-over tuart country indicate that the average annual girth increment of this species is approximately .7in. per annum.

It is proposed to establish larger sample plots to test quantitatively the results of various silvicultural methods and also fire protection. The greater part of this work will be carried out by apprentices as part of their practical training.

VIII.—LEGISLATION.

No amendment has been made to the Forests Act, 1918. Suggestions have been received from a number of quarters that Section 24 of the Act, which prevents sleeper cutters from hewing on permit areas, unless they followed the occupation of a hewer prior to the passing of the Act, should be amended. It is suggested that men who have taken up the occupation and have been employed in hewing in private paddocks during the recent boom period, should now be allowed to operate on Crown Lands. Apart from the fundamental objection from the State's point of view, that our forests cannot support even those hewers who are to-day entitled to be registered, there is the following reason to be urged against this amendment, which should appeal more strongly to the sleeper hewer and his representatives. The position which exists in the timber districts to-day is due entirely to lack of oversea orders. Local orders are necessarily limited and are not by any means sufficient to keep all registered hewers in constant employment. If men who have come into the industry during the boom period, knowing the restrictions against hewing on Crown lands, and made good money during the boom, are to be allowed to register, then there may be work for all for a few weeks, but orders will be rapidly overcut and the position will be worse than ever. The only solution to the problem is fresh orders. The men most deserving of consideration are those who have spent their lives in the industry, and the few orders available to keep these men going, should not be sacrificed to provide a few weeks' work for a

crowd of men who, up to a year or two ago, followed some other occupation.

Amending legislation to enable the Department to co-operate with the Water Supply Department in the suppression of mobs of semi-wild horses roaming at large on catchment areas, has been recommended.

The old Cattle Trespass Act of 1882, is quite inadequate and it is suggested that water pollution and destruction of young plantations can be most effectively prevented by giving the necessary powers under the Water Supply Department Regulations.

Certain amendments to the Bush Fires Act, 1902, have also been recommended. These suggested amendments, to which considerable importance is attached in that they will render more effective the fire control work now being carried out by this Department, are set out in full hereunder.

Amendment of Bush Fires Act, 1902.

(1.) Add to Section 5 (1a) "or he may by notice in the *Gazette* declare certain parts of the State mentioned in such notice to be Fire Protected Districts. Such Fire Protected Districts may include Crown land, over which the Forests Department is carrying out fire control measures, and such adjacent private property, conditional purchase leases, grazing leases, and other Crown lands, as may be considered necessary."

(2.) *Additional Sections.*—Within such gazetted Fire Protected Districts notwithstanding the provisions of Section 5 of the Principal Act:—

(a) No person shall burn any part of the bush at any time whatsoever unless he shall first obtain a written permit from an authorised officer of the Forests Department in charge of such Fire Protected District, but in all other respects shall comply with the provisions of the Principal Act.

(b) In the event of a Fire burning on privately held property threatening Crown land over which the Forests Department are carrying out fire control measures, any officers of the Forests Department may enter on such private property for the purpose of suppressing the fire. The cost of suppressing such fire may be charged to the occupier of the land, and shall be recoverable in a court of law.

(3.) The Governor may from time to time suspend the operations of any declaration made under Section 5 of the Principal Act, so far as such declaration extends to any railway reserve or any Crown land under the control of the Forests Department for any period not exceeding six weeks in any one year. "The Bush Fires Act Amendment Act, 1904," is hereby repealed.

The following resolution of the recent Interstate Forestry Conference has a very pertinent bearing on these recommendations:—

"That this Conference affirms that it is a matter of the greatest possible moment to the Forest Departments of every State, that such fire legislation should be enacted, and such alterations to existing laws should be made and should be so administered as will suffice to give greater protection to the various forest areas from the ever-present danger of ruinous loss arising from the gross neglect so constantly shown of the conditions of existing Fire Acts."

IX.—FORESTRY CONFERENCE.

An Australian Forestry Conference was held in Brisbane from 30th March to 4th April, 1922. The writer represented this State. Papers were presented and helpful discussion ensued on problems of policy and practice confronting the various States of the Commonwealth. The resolutions adopted by the Conference which affect this State are set out hereunder—

FIRE LEGISLATION.

That this Conference affirms that it is a matter of the greatest possible moment to the Forest Departments of every State that such fire legislation should be enacted, and such alterations to existing laws should be made, and should be so administered, as will suffice to give greater protection to the various forest areas from the ever-present danger of ruinous loss arising from the gross neglect so constantly shown of the conditions of existing Fire Acts.

UNIT OF TIMBER MEASUREMENT.

That this Conference recommends that, as far as trade conditions permit, the cubic foot be used as the unit of volume measurement of timber, and a correct formula be adopted for the computation of the volume of round logs.

TIMBER CONCESSIONS.

That this Conference recommends to the various Governments of Australia that any concession of timber lands to private persons should have the approval of the forestry authorities in the particular State in which the concession is proposed before it is actually granted.

EXHAUSTION OF TIMBER RESOURCES.

That this Conference of Australian Foresters warns Australia that the timber resources are now within measurable distance of exhaustion, and each State should set out to produce its own future timber supplies.

EXTENSION OF PLANTATIONS.

That this Conference is of the opinion that in view of the enormous importations of softwoods to the Commonwealth and of the extensive tracts of waste lands of the various States available and suitable for coniferous plantations, every effort should be made towards afforestation of such areas in order that the Commonwealth may become self-supporting in this respect as rapidly as possible.

FINANCIAL BASIS OF SILVICULTURAL OPERATIONS.

That this Conference affirms the principle that the soil rental basis for silviculture in each State should not be higher than the Crown's original rental basis for agriculture in that State.

That this Conference affirms that in reforesting an area no part of the proceeds of the sale of the old crop should be credited to the new crop.

ESTABLISHMENT OF ARBORETA.

That this Conference affirms the desirability of establishing a systematically arranged arboretum in each State in order that a useful source of definite information should be available.

FOREST ENTOMOLOGY AND PLANT PATHOLOGY.

That this Conference affirms:—

That Government Forestry administrations should make provision for dealing with the questions of forest zoology (entomology) and forest pathology.

That one or more of the higher educational institutions should make provision for exact research in matters pertaining to forest zoology (entomology) and forest pathology.

That the curricula of all Australian forest schools include the subjects of forest zoology (entomology) and forest pathology, especially from a biological standpoint.

That inspection under the Quarantine Act (Plants) take special cognisance of timber (raw or manufactured) imports.

CENTRAL FORESTRY SCHOOL.

That this Conference urge the establishment of a Central Forestry School in its present form.

That the Central Forestry School be established in a forest within easy reach of railway, as near as is possible to the Queensland border, and that each student for admission to this school be compelled to serve twelve months' probation in general field work in a State forest, and that his ultimate admission to the school be dependent on the recommendation of the Forestry officer under whom he has been employed.

FOREST TERMINOLOGY.

That this Conference appoint a sub-committee consisting of a representative from each State and from the Commonwealth to prepare a glossary of technical terms for use in forestry practice throughout Australia.

That Messrs. Knibbs, Hay, Kessell, Jones, Swain, Irby, and Gill be appointed as the Committee to deal with the glossary of terms.

FORESTRY STATISTICS.

That the proposal as to the form of preparation of forestry statistics submitted by the Commonwealth Statistician be referred to the forest authority of each State for consideration and statement of views to the Standing Secretary of the Conference, and that the Standing Secretary be instructed to co-ordinate the views received in a form acceptable for adoption by each State.

CENTRAL SEED STORE.

That this Conference affirms that a considerable economy would be effected by the establishment of a central seed store for the importation and storage of seed for distribution to the Forest Departments of the various States, and that such arrangements be made as will conduce to this end.

PROPAGANDA WORK IN SCHOOLS.

That this Conference urges upon the Education Departments of the various States the importance of cultivating a healthy attitude, both among the teachers and children, towards the economic and aesthetic value of forests and their attributes, and suggests the formation of Nature Leagues throughout the schools of Australia.

NATIONAL WELFARE.

That this Conference desires to draw the attention of the citizens of Australia to the intimate connection between forestry and national welfare, and invites their support and co-operation.

CO-OPERATION WITH TIMBER INDUSTRY.

That this Conference requests the cordial co-operation of the sawmilling industry in the efforts of the States Governments to make their timber industries permanent.

The thanks of delegates are due to the Queensland Government and the Forests Department of that State for facilities provided and hospitality shown.

X.—ROYAL COMMISSION ON FORESTRY.

As a result of the discussion arising out of the decision of the Government to extend the term of the leases and concessions held by Millars' Timber and Trading Company, a Royal Commission on Forestry was appointed on 18th January, 1922.

Members—W. G. Pickering, Esq., M.L.A., Chairman.

H. W. Mann, Esq., M.L.A.

P. L. O'Loughlen, Esq., M.L.A.

The terms of the Commission were to inquire into—

- (1) The financial provisions of the "Forests Act, 1918," and the operation thereof, and
- (2) The administration of the said Act generally.

The Commission is still pursuing its investigations.

XI.—PERSONNEL.

Owing to the decision of the Government to extend, under Section 6 b (1) of the Forests Act, the term of the concessions and leases held by Millars' Timber and Trading Company, despite his recommendations to the contrary, Mr. C. E. Lane-Poole tendered his

resignation on 5th July, 1921. The Government saw fit to accept his resignation, and Mr. Lane-Poole ceased duty on 22nd October, 1921, after occupying the position of Conservator of Forests for five years. During that period the Forests Act of 1918 became law and great advance was made towards the recognition of Forestry as a subject of national importance. Within the department Mr. Lane-Poole had succeeded in imbuing the whole staff with his own enthusiasm for the work, and his resignation was regarded by all who had served under him as a personal loss. Whatever vicissitudes the forest policy of the State may pass through before forestry becomes established as one of our great permanent rural industries, the late Conservator will always be regarded as a man of clear vision and high ideals who strove successfully to lay the foundations of a sound forest policy.

(a.) *Resignations.*

Mr. R. H. Davey, B.Sc., resigned from his position as Instructor in Forestry.

(b.) *Transfers.*

Mr. G. Drake-Brockman, who became attached to the department on 31st March, 1920, as officer controlling the cutting of sandalwood, was transferred to the Department of the North-West on 1st August, 1921, on receiving appointment as Commissioner for the North-West.

Mr. J. S. Ogilvie, who for a period of over four years had done good work in this department, chiefly in the preparation of pamphlets and publicity matter, was transferred on 29th September, 1921, to the Council of Industrial Development.

The services of Mr. T. N. Stoate, B.Sc., have been obtained on loan by the courtesy of the New South Wales Forestry Commission. The Commission have given Mr. Stoate nine months' leave in order that he may widen his experience, and also assist this department at a time when it particularly needed the services of a professionally trained man as Instructor in Forestry and Assistant Working Plans Officer.

(c.) *Appointments.*

In December, 1921, two Western Australians (viz., Messrs. S. A. MacKay and G. E. Brockway) obtained the degree of Bachelor of Science in Forestry at the Adelaide University and have since been employed in this department on probation as Assistant District Forest Officers.

Two temporary and one permanent assistant foresters have been appointed.

Four apprentices have signed indentures and the indentures of two other apprentices engaged during the previous year have been cancelled owing to failure of the boys to pass the necessary examinations.

Two Assistant Foresters have been examined and promoted to Foresters.

The following public servants situated in North-West ports were appointed Honorary Foresters on 1st May, 1922:—Mr. E. Mudge, Derby; Mr. H. W. Townsend, Broome; Mr. L. Rodoreda, Roebourne; and Captain J. J. Harris, Wyndham. The appointment of these officers was made on the recommendation of the North-West Department, so that we might be advised of all forest produce leaving North-West ports and thus be in a position to exercise any neces-

sary control over the removal of forest produce from Crown lands in that part of the State.

Mr. J. Coxon was appointed manager of the departmental mill at Wonnerup on 23rd August, 1921, taking the place of the former manager who resigned some short time prior to that date.

(d.) *Reductions in Staff.*

The services of one Forester were dispensed with. Owing to the decrease in the export trade, three temporary timber inspectors and two casual inspectors were retrenched.

XII.—GENERAL.

FOREST SETTLEMENT.

In the dedication of State Forests in Karri country recommended jointly by the Director of Land Settlement, the Surveyor General and the writer, there is included some 2,290 acres of prime Karri country which has been cut over by the State Saw Mills from the Pemberton Mills. This country lies to the East of Lefroy Brook, along which are to be found some very fine patches of soil. With the dual object of utilising this rich soil and establishing settlers who will have an interest in the adjoining forest, it has been recommended that a limited number of settlers be established on co-operative lines. Under this arrangement, it is proposed that the settlers be found work in the forest adjoining their holdings for a few months each year. The forest will gain by being tended by permanent workmen and the settlers will be provided with a sure source of cash while becoming established. It is suggested that the settlers be men accustomed to axe work and approved by the Forests Department; that the foreman in charge of all operations be a forester with a knowledge of local agricultural conditions; and that the position and extent of holdings be indicated by the Forests Department. These recommendations are now under consideration.

TIMBER RESOURCES OF THE NORTH-WEST.

Owing to applications for permits to obtain various classes of forest produce from the North-West, particularly cypress pine from the East Kimberleys, the Hon. Minister for Forests decided that it was advisable, in view of the contradictory nature of reports available, to despatch an officer to make a detailed inspection.

The Head Forester (Mr. D. McVicar) left for Wyndham on 31st May, 1922, and has not yet returned. A preliminary report on the Cypress pine timber in the East Kimberleys which was first investigated has been received by aerial mail.

Mr. McVicar comments very favourably indeed on the grazing and agricultural possibilities of the country traversed, but is very dubious concerning the commercial possibilities of exploiting the cypress pine. It appears that this timber tree occurs in narrow belts a few chains wide, and that supplies available are decreasing annually, owing to destruction by grass fires. Land transport of twelve miles and the necessity of providing shipping facilities in the splendid deep water harbour which exists, combined with the comparative sparseness of supplies, render the extraction of this timber unattractive, unless abnormally high prices are obtainable.

S. L. KESSELL.

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APPENDIX 1A.

General Statement of Revenue and Expenditure for the Financial Year ended 30th June, 1922.

Dr. 1922. June 30.	£	s.	d.	£	s.	d.	1922. June 30.	£	s.	d.	Cr.
To Log Royalty from permits granted under Section 11 of the Land Act, 1898—							By Salaries of Office and Administrative Field Staff ...	7,011	0	0	
Jarrah	35,906	9	5				Wages (temporary)	4,163	8	5	
Karri	2,898	1	7				Commuted Travelling Allowance	2,286	7	6	
				38,804	11	0	Special Allowance	21	17	5	
„ Log Royalty from permits granted under Forests Act, 1918—							Maintenance of State Nursery	100	7	4	13,482 13 4
Jarrah	11,222	6	10				Workers' Compensation Fund	63	13	9	
Sheoak	60	6	5				Sandalwood Commission	398	17	3	
Banksia	165	18	5	11,448	11	8	Postage and Telephone	190	13	4	
„ Miscellaneous Royalty—							Stationery	516	19	4	
Piles and Poles	375	15	10				Advertising	270	1	7	
Hewn Sleepers	2,393	12	4				Travelling Allowance	282	8	8	
Sandalwood	7,934	0	1				Library	196	3	8	
Firewood	424	19	8				Freights and Fares	590	5	10	
Beams	43	18	4				Equipment	165	2	0	
Mining Timber	1,348	0	0				Miscellaneous	181	8	11	2,956 1 8
Sundries	39	14	1	12,560	0	4	Total Consolidated Revenue				
„ Inspection Fees—							Expenditure				16,438 15 0
Hewn Sleepers from Crown Lands	876	0	5				„ Expenditure from Forest Improvement Reforestation Fund (Sec. 41 (2) Forests Act, 1918)				23,158 4 6
Sawn Sleepers from Crown Lands	3,253	12	0				„ Expenditure from Mining Leases Royalty Account (Sec. 39 (1) Forests Act, 1918)				965 1 1
Sawn Timber from Crown Lands	1,181	0	1				„ Expenditure from General Loan Fund—				
Hewn Sleepers from Private Property	5,321	7	10				Pine Planting	2,243	17	9	
Sawn Sleepers from Private Property	1,448	0	6				Purchase of Land	80	0	6	2,323 18 3
Sawn Timber from Private Property	236	15	8								47,885 18 10
Piles and Poles	159	1	8				„ Balance—Excess of Revenue over Total Expenditure				40,643 17 2
Miscellaneous	129	1	2	12,604	19	4					
„ Rents—											
Concessions	686	0	0								
Leases	6,960	0	0								
Tramways	715	0	0								
Sawmill Sites	62	0	0								
Forest Leases	182	0	0								
Cottages	28	0	0	8,633	0	0					
„ Sales—											
Tuart	2,231	13	0								
Trees and Seeds	419	0	11								
Illegally Cut Timber	497	7	4								
Brands	99	2	0								
Pine Thinnings	19	3	11								
Publications	23	6	8	3,239	13	10					
„ Miscellaneous Revenue—											
Registration Fees	318	5	6								
Exemption Fees	41	2	0								
License Fees	508	15	6								
Sundries	320	16	10	1,188	19	10					
				£88,529	16	0					£88,529 16 0

APPENDIX 1B.

Statement of Forest Improvement and Reforestation Fund as at 30th June, 1922.

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

Dr.				Cr.			
1921.				1922.			
July 1.				June 30.			
		£	s. d.			£	s. d.
To Balance brought forward	...	5,781	0 0	By Working Plan No. 1 (Jarrah belt)	...	5,881	0 0
To Three-fifths of net revenue in accordance with Forests Act	...	41,174	0 0	„ Working Plan No. 2 (Tuart belt)	...	9,620	0 0
Miscellaneous refunds	...	371	0 0	„ Working Plan No. 3 (Collie Mining Leases)	...	1,066	0 0
		41,545	0 0	„ Research	...	2,231	0 0
				„ Education of Apprentices	...	2,965	0 0
				„ General Equipment	...	1,363	0 0
				„ Advertising and Publicity	...	659	0 0
				„ Sandalwood Propagation	...	280	0 0
				„ Salaries of field staff engaged on non-administrative work	...	3,782	0 0
				„ Miscellaneous	...	311	0 0
				„ Balance carried forward	...		
		£47,326	0 0			11,591	0 0
						19,168	0 0
						£47,326	0 0
1922.				1922.			
July 1.				June 30.			
To Balance brought forward	...	19,168	0 0				

APPENDIX 1c.

Mining Leases Royalty Account.

Section 39 (1) "Forests Act, 1918."

Dr.				Cr.			
1921.				1922.			
July 1—				June 30—			
		£	s. d.			£	s. d.
To Balance brought forward	...	37	0 0	By Expenditure on Reforestation on Collie Mining Leases	...	965	0 0
„ Royalties collected during the Financial Year	...	1,348	0 0	„ Balance carried forward	...	420	0 0
		£1,385	0 0			£1,385	0 0
1922.				1922.			
July 1—				June 30—			
To Balance brought forward	...	420	0 0				

APPENDIX 1d.

REFORESTATION FUND AND MINING LEASES' ROYALTY ACCOUNT.

Detailed Statement of Expenditure on Working Plans for year ended 30th June, 1922.

	Working Plan No. 1.	Working Plan No. 2.	Working Plan No. 3.		Total.
			Reforestation Fund.	Mining Leases Royalty Account.	
	£	£	£	£	£
Road Construction	295	...	...	...	295
Nursery Work	22	...	...	...	22
Tools and Equipment	97	180	27	1	305
Fire control—					
Lookout Towers	703	...	...	...	703
Telephone Lines	731	...	...	...	731
Firebreaks	323	46	806	101	1,276
General and Patrol	1,094	53	25	37	1,209
Silviculture	2,064	237	100	97	2,498
Fencing	...	1,334	...	...	1,334
Forest Workers' accommodation	...	220	...	...	220
Grazing	...	73	...	...	73
Pine Sowing	...	...	11	255	266
Tuart Mill	...	6,898	...	...	6,898
Wages and Salaries	552	455	79	448	1,534
General Expenses	...	124	18	26	168
Totals	£5,881	£9,620	£1,066	£965	£17,532

APPENDIX 1E.

WONNERUP TUART MILL.

Trading, Profit and Loss Accounts and Balance Sheet for period ended 30th June, 1922.

TRADING ACCOUNT.

Dr.			1922.			Cr.		
1922.			1922.			1922.		
			£	s.	d.	£	s.	d.
June 30—To	Wages ...	...	2,639	4	1	June 30—By Sales ...	...	3,017 19 9
	„ Haulage ...	...	1,029	3	9	„ Timber used in construction ...	...	788 9 0
	„ Forage ...	...	288	11	3	„ Stock—Sawn Timber	590 0 0	
	„ General Mill expenses	...	285	18	3	„ Material ...	9 13 8	
	„ Freights ...	...	265	14	5			
	„ Working Material	...	180	9	1	„ Gross loss to Profit and Loss Account	...	317 18 5
	„ Rent on Siding	...	35	0	0			
			£4,724 0 10					£4,724 0 10

PROFIT AND LOSS ACCOUNT.

Dr.			1922.			Cr.		
1922.			1922.			1922.		
			£	s.	d.	£	s.	d.
June 30—To	Trading Account (gross loss)	...	317	18	5	June 30—By Balance (net loss)	...	1,839 1 7
	„ Interest on Capital	...	675	16	4			
	„ Depreciation	...	323	7	9			
	„ Insurance	...	81	17	1			
	„ Discounts	...	404	17	6			
	„ Compensation Fund	...	35	4	6			
			£1,839 1 7					£1,839 1 7

Balance Sheet for period ended 30th June, 1922.

LIABILITIES.			ASSETS.					
			£	s.	d.	£	s.	d.
Capital (Special Fund provided under Section 41 (2) Forests Act, 1918)	...	...	11,263	12	2	<i>Buildings—</i>		
Reforestation Fund	...	...	3,155	6	4	Workers' Cottages	2,038	4 10
			£14,418 18 6			Mill Buildings	2,216	10 10
						Turnery Shop	60	11 9
								4,315 7 5
						Railway Siding	...	2,157 5 4
						Bridge and Railway Crossings	...	195 10 4
						Pipe Line (Water Supply)	...	577 9 10
						Plant and Machinery	4,027	0 6
						Less Depreciation	297	17 11
								3,729 2 7
						Tools and Equipment	620	1 7
						Less Depreciation	25	9 10
								594 11 9
						Sundry Debtors	...	410 16 0
						<i>Stock on hand—</i>		
						Sawn Timber	590	0 0
						Working Material	9	13 8
								599 13 8
						<i>Profit and Loss Account—</i>		
						Net Loss	...	1,839 1 7
								£14,418 18 6

APPENDIX 1F.

Statement of General Loan Fund for year ended 30th June, 1922.

1922.		£	1922.		£	£
1922.		1922.	1922.		1922.	1922.
June 30—To	amount provided by the Treasury Department	...	2,324	June 30—By	Purchase of Land	80
				„	Purchase of Seed	223
				<i>Mundaring District—</i>		
				By	Greystone's Nursery	437
				„	Byfield's Nursery	840
				„	Sample Plots	72
				„	Tools and Equipment	33
						1,382
				„	Experimental Work Lake	
				Gnangara	...	3
				<i>Ludlow Plantation—</i>		
				By	Pine Planting	636
			£2,324			£2,324

APPENDIX 1c.

Statement of Timber Inspected by the Inspection Branch of the Forests Department during the year ended 30th June, 1922.

	Inspection Fees.	
	Cubic Feet.	Amount.
Sawn sleepers	2,901,707	£ 4,701 12 6
Hewn sleepers	3,727,566	6,197 8 3
Sawn and Hewn timber	636,248	1,433 0 1
Banksia logs	14,516	26 0 11
	Lineal Feet.	
Heart in Beams	14,260	87 15 11
Piles and Poles	31,569	159 1 8
		£12,604 19 4

APPENDIX 1H.

Revenue and Expenditure.

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

Year.	Revenue.	Expenditure.				Total.
		Consolidated Revenue Fund.	General Loan Fund.	Reforestation Fund.	Mining Leases Fund.	
	£	£	£	£	£	£
1st January to 31st December, 1895	3,175	1,108	...	...	...	1,108
1st January to 31st December, 1896	4,839	2,021	...	...	...	2,021
1st January to 31st December, 1897	12,320	3,490	...	...	...	3,490
1st January to 31st December, 1898	30,150	3,356	...	...	...	3,356
1st January to 31st December, 1899	17,000	2,438	...	...	...	2,438
1st January to 31st December, 1900	15,526	2,649	...	...	...	2,649
1st January to 31st December, 1901	18,478	2,747	...	...	...	2,747
1st January to 31st December, 1902	18,753	4,301	...	...	...	4,301
1st January to 31st December, 1903	20,478	3,789	...	...	...	3,789
1st January to 31st December, 1904	20,019	4,193	...	...	...	4,193
1st January to 31st December, 1905	18,480	5,090	...	...	...	5,090
6 months, 1st January to 30th June, 1906	10,974	3,385	...	...	...	3,385
1st July, 1906, to 30th June, 1907	22,783	6,208	20	...	...	6,228
1st July, 1907, to 30th June, 1908	23,499	8,802	443	...	...	9,245
1st July, 1908, to 30th June, 1909	29,484	9,031	584	...	...	9,615
1st July, 1909, to 30th June, 1910	31,549	8,531	1,833	...	...	10,364
1st July, 1910, to 30th June, 1911	37,477	8,863	2,888	...	...	11,751
1st July, 1911, to 30th June, 1912	44,561	10,469	3,135	...	...	13,604
1st July, 1912, to 30th June, 1913	48,237	11,463	3,842	...	...	15,305
1st July, 1913, to 30th June, 1914	53,039	12,093	4,432	...	...	16,525
6 months, 30th June, to 31st December, 1914	22,906	5,469	1,063	...	...	6,532
1st January to 31st December, 1915	45,726	8,870	1,399	...	...	10,269
1st January to 31st December, 1916	29,821	9,575	911	...	...	10,486
1st January, to 31st December, 1917	36,129	10,263	842	...	...	11,105
6 months, 1st January to 30th June, 1918	22,113	6,199	268	...	...	6,467
1st July, 1918, to 30th June, 1919	42,051	10,873	594	...	...	11,467
1st July, 1919, to 30th June, 1920	59,220	12,962	...	7,241	...	20,203
1st July, 1920, to 30th June, 1921	75,469	16,128	11,742	*50,673	...	78,543
1st July, 1921, to 30th June, 1922	87,182	16,439	2,324	27,794	965	47,522
	£ 901,438	210,805	36,320	85,708	965	333,798

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

It will be seen from the above statement that to the 30th June, 1922, the revenue exceeded the total expenditure by the large sum of £567,640.

APPENDIX 2A.

Production of Mill Timber for Year ended 30th June, 1922.

round

	Jarrah.		Karri.		Total.	
	Loads.	Cubic feet.	Loads.	Cubic feet.	Loads.	Cubic feet.
Concessions	48,631	2,431,550	...	...	48,631	2,431,550
Leases	179,937	8,996,850	...	...	179,937	8,996,850
Permits	348,090	17,404,500	85,504	4,275,200	433,594	21,679,700
Total	576,658	28,832,900	85,504	4,275,200	✓ 662,162	33,108,100

NOTE.—Percentages of recovery of sawn timber from the round are:—Jarrah 35 per cent. and Karri 27 per cent. The totals above will therefore represent 224,916 loads of sawn timber or 11,245,800 cubic feet.

Mill Logs.—This statement includes all timber from Crown Lands, Sawmill Permits, Timber Leases and Concessions, but does not include timber cut on Private Property.

APPENDIX 2B.

Timber (excluding hewn) obtained from Private Property for Year ended 30th June, 1922.

square

Name of Timber.	Loads.	Cubic feet.
Jarrah Logs	835	41,750
Jarrah Sawn Timber	4,441	222,050
Tuart Logs	27	1,350
River Banksia	2	100
Blackbutt	3	150
Karri	448	22,400
Marri	201	10,050
Sheoak	7	350
Peppermint	4	200
Total	✓ 5,968	298,400

APPENDIX 2c.

Inspected Hewn Jarrah Sleepers obtained during Year ended 30th June, 1922.

	Loads.	Cubic feet
From Crown Lands, Saw Mill permits, etc., on which Royalty has been paid	10,705	535,250
From Private Property Leases and Concessions	59,365	2,968,250
Total	70,070	3,503,500

NOTE.—The average recovery by the hewer is 20 per cent. of the log. The above total represents 350,350 loads, or 17,517,500 cubic feet in the round.

APPENDIX 2D.

Timber (other than Jarrah and Karri) and other Forest Produce obtained from Crown Lands for the Year ended 30th June, 1922.

Name of Timber or other Forest Produce.	No.	Cubic feet measured in Round.	Tons.
Banksia	13,384	...
Barks and Gums	10
Blackbutt	8,862	...
Charcoal	124
Firewood	40,129
Fencing Posts	19,882	...	...
Flooded Gum	22,855	...
Marri	2,513	...
Mining Timber	231,859	...
Pine Logs	83
Sandalwood	61
Sheoak	*5,033	...
Sheoak Shingles	8,000	...	...
Tuart	42,418	...
Wandoo	1,766	...
Total	27,882	328,690	40,407

* Measured in the square.

APPENDIX 2E.

Total Production of Timber for Year ended 30th June, 1922.

Appendix Reference.	In the Log.		In the Square.	
	Loads.	Cubic feet.	Loads.	Cubic feet.
Total Milling Timber (Appendix 2A)	662,162	33,108,100	224,916	11,245,800
Total Sawn Timber from Private Property (Appendix 2B)	15,978	798,900	5,450	272,500
Total Hewn Timber (Appendix 2c)	350,350	17,517,500	70,070	3,503,500
Total Miscellaneous Timbers (Appendix 2D)	6,761	338,050	2,366	118,300
Total, Appendices 2A to 2D	1,035,251	51,762,550	302,802	15,140,100

APPENDIX 2F.

Piles, Poles and Heart in Beams Inspected during the Year ended 30th June, 1922.

Round Piles and Poles	31,569 lineal feet.
Heart in Beams	14,260 lineal feet.

APPENDIX 2G.

Mining Timber and Firewood Consumed during Year ended 30th June, 1922.

Locality.	Wood Fuel Consumed.	Mining Timber Consumed.	Sleepers.	Total.
	tons.	tons.	No.	tons.
Greenbushes Mining Fields	303	...	...	303
Collie Coal Fields ... ..	...	7,000	...	7,000
Metropolitan Area	145,000	...	...	145,000
Golden Mile, Coolgardie, Norseman, Kuranalling, Golden Ridge, Kanowna, Mt. Monger, St. Ives, and Carbine	262,159	8,771	...	270,930
Northern Goldfields, Broad Arrow, Bardoc, Ora Badna, Comet Vale, Menzies, Kookynie, Laverton, Mt. Morgans and Mt. Margaret Districts	25,000	1,000	...	26,000
Southern Cross, Marvel Loch, Mt. Rankin, Burbridge, Westonia, Manxman and Bullfinch Districts	20,000	4,000	...	24,000
Goldfields Water Supply Pumping Stations, Nos. 5, 6, 7 and 8, plus other small pumping plants	14,000	...	...	14,000
Eastern Goldfields Districts (household)	35,000	...	...	35,000
Eastern Goldfields (bakers)	12,000	...	...	12,000
Eastern Goldfields Batteries (State and private) outside Golden Mile	7,000	...	...	7,000
Eastern Goldfields Breweries, Cordial, Confectionery and Soap Factories	1,000	...	...	1,000
Eastern Goldfields Tramways (locomotive wood)	16,000	...	...	16,000
Eastern Goldfields Electric Power and Light	40,000	...	...	40,000
Eastern Goldfields Producer Plants and blacksmiths (as charcoal)	1,000	...	...	1,000
Sleepers for tram lines (6ft. to 7ft. x 7in. x 4in. to 7in. x 4½in.) ... ..	...	...	*33,816	...
	†578,462	20,771	*33,816	599,233

* Not included in total.

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

APPENDIX 2H.

Exports of Timber, Tanning Barks, Sandalwood, etc., for Year ended 30th June, 1922.

Item and Country of Destination.	Quantity.	Value.	Item and Country of Destination.	Quantity.	Value.
<i>Timber, Dressed—</i>	super. ft.	£	<i>Sandalwood—</i>	cwt.	£
Commonwealth of Australia...	83,610	1,895	Hong Kong	57,215	37,282
South African Union	150,900	1,832	Ceylon	40	36
Holland	42,000	1,053	Straits Settlements	4,548	3,935
United Kingdom	5,600	65	Java	81	66
	282,110	4,845	China	11,241	7,306
			India	6,665	6,144
<i>Timber, Undressed—</i>				79,790	54,769
Commonwealth of Australia	29,500,852	291,338	<i>Tanning Bark—</i>		
United Kingdom	6,798,600	79,796	Commonwealth of Australia	24,342	12,940
Singapore	1,400	24	Java	596	388
Ceylon	6,203,400	61,759		24,938	13,328
New Zealand	4,747,400	48,513			
India	9,160,700	91,354	<i>Essential Oils—</i>		
South African Union	36,983,100	388,295	Commonwealth of Australia...	...	2,889
Egypt	352,100	3,517	United Kingdom ... ..	...	2,276
China	55,200	552	Mauritius ... ..	...	20
Mauritius	3,705,900	50,591	Ja an ... ..	...	1,375
Java	200	30	China ... ..	...	125
Belgium	1,626,600	16,263	France ... ..	...	188
Holland	295,000	4,110	Java ... ..	...	5
Japan	4,300	60		...	6,878
	99,434,752	1,036,202		...	...
<i>Casks and Shooks—</i>				...	...
Commonwealth of Australia	...	20,455		...	...
<i>Wood Manufactures, N.E.I.—</i>				...	...
Commonwealth of Australia...	...	1,886		...	...
British Malaya ... ..	...	61		...	...
Java ... ..	...	26		...	...
	...	1,973		...	...
Total, Timber Exported ...	...	£1,063,475	Total Exports	...	1,138,450

APPENDIX 21.

Timber Imports for the Year ended 30th June, 1922.

Item and Country of Origin.	Quantity.	Value.	Item and Country of Origin.	Quantity.	Value.
<i>Timber, Dressed, N.E.I.—</i>	super. ft.	£.	<i>Brush Makers' Woodware, Wood</i>	super. ft.	£
Commonwealth of Australia...	11,941	394	<i>Tool Handles—</i>		
Norway	2,600	12	Commonwealth of Australia...	...	4,790
United States of America ...	5,459	119	France ... ..	...	13
Sweden	2,194	79	United Kingdom ... ..	...	130
	22,194	604	United States of America ...	...	6,473
				...	11,406
<i>Timber for making Boxes and Doors—</i>			<i>Oars and Sculls—</i>		
Commonwealth of Australia...	...	1,061	Commonwealth of Australia...	...	215
India	200	1	United Kingdom ... ..	...	169
New Zealand ... ..	...	69	United States of America ...	...	69
	200	1,131		...	453
<i>New Zealand Pine—</i>			<i>All Wood Articles, N.E.I.—</i>		
Commonwealth of Australia...	105,072	3,189	Commonwealth of Australia	...	9,963
<i>Logs, not Sawn—</i>			United Kingdom ... ..	...	3,721
British Malaya	1,400	11	Canada ... ..	...	454
Dutch Borneo	226,000	1,158	Czecho Slovakia ... ..	...	83
United States of America ...	100	1	British Malaya ... ..	...	2
	227,500	1,170	China ... ..	...	14
<i>Timber, Undressed—</i>			France ... ..	...	60
Commonwealth of Australia...	895,396	24,804	Japan ... ..	...	9
British Malaya	4,400	38	United States of America ...	...	1,417
Japan	56,116	2,312	Sweden ... ..	...	374
Canada	4,777	96	India ... ..	...	2
New Zealand	5,198	137	Australia (reintroduced) ...	...	659
Sweden	28,569	736	Java ... ..	...	1
Norway	20,223	478		...	16,759
Philippine Islands	2,659	162	Total Timber Imports ...		£92,448
United States of America ...	534,799	11,822			
	1,552,137	40,585	<i>Tanning Barks—</i>	cwt.	
<i>Veneers, Three-ply—</i>			Commonwealth of Australia	5,336	4,070
Commonwealth of Australia...	...	4,037	United Kingdom	203	166
United Kingdom	25,200	745	South African Union	3,387	1,590
United States of America ...	300	64	Ecuador	20	39
Japan	18,400	784		8,946	5,865
Norway	5,700	90	<i>Tanning Extracts—</i>		
Norway	500	8	Commonwealth of Australia...	91	181
Russia	40,800	464	British Malaya	200	350
Sweden ... ..	...	...	India	570	840
	90,900	6,192	Argentina	142	230
<i>Veneers, N.E.I.—</i>			United Kingdom	23	65
Sweden	5,500	84	United States of America ...	80	142
<i>Architraves, Mouldings—</i>			Brazil	26	146
Commonwealth of Australia...	...	1,385		1,132	1,954
<i>Laths for Blinds—</i>			<i>Essential Oils—</i>		
Commonwealth of Australia	...	224	Commonwealth of Australia	...	3,558
United States of America ...	...	70	United Kingdom ... ..	...	405
	...	294	United States of America ...	...	820
<i>Picture and Room Mouldings—</i>			United States of America ...	...	296
United Kingdom ... ..	...	222	Ceylon ... ..	...	14
Canada ... ..	...	262	India ... ..	...	1
	...	484	British Malaya ... ..	...	3
<i>Spokes, Dressed—</i>	No.		Trinidad ... ..	...	4
Commonwealth of Australia...	55,606	2,586	China ... ..	...	918
Australia (reintroduced) ...	1,220	53	Italy ... ..	...	82
	56,826	2,639	Sicily ... ..	...	382
<i>Barrels, Casks, Vats, etc.—</i>			France ... ..	...	30
Commonwealth of Australia...	...	5,895	Japan ... ..	...	9
Australia (reintroduced) ...	...	119	Greece ... ..	...	55
Italy ... ..	...	1	Spain ... ..	...	...
United States of America ...	...	58		...	6,577
	...	6,073	Total, Imports ...		£106,844

APPENDIX 2J.

Summary of Timber Treated by Forest Sawmills Exported from Western Australia during the Year ended 31st December, 1921.

	Jarrah.	Karri.	Other Timber.	Total.	Inter- state.	New Zea- land.	United King- dom.	South Africa.	British India.	Ceylon.	Mauri- tius.	Egypt.	Bel- gium.	Hol- land.	China.	Japan.
Hewn Beams and Piles Undressed, 7 x 2½ to 12 x 6	loads 1,051	loads ...	loads ...	loads 1,051	loads 74	loads ...	loads ...	loads 22	loads ...	loads ...	loads ...	loads ...	loads 955	loads ...	loads ...	loads ...
Undressed, 12 x 6, and over	56,643½	16,212	37	72,892½	45,459½	2,846	14,809	4,672	1,206	115	767	...	2,786	229	3	...
Pickets and Palings	103	...	...	103	103	...	...	...	...	...	...	...	...	...	...	...
Flooring Boards ...	4,212½	...	...	4,212½	3,494½	536	...	...	...	...	...	...	...	...	...	...
Paving Blocks ...	4,390	...	...	4,390	3,135	...	1,251	182	...	...	...	...	...	...	...	...
Sleepers, sawn ...	*48,934½	...	...	48,934½	638	4,209½	11,520	23,363	6,582½	1,136	537½	424	...	...	...	4
Sleepers, hewn ...	†16,051	...	...	16,051	299	2,666	639	9,494	886	1,349	122	...	...	...	524	...
Sleepers Powellised	...	7,774	...	7,774	1,000	...	...	3,740	3,034	...	...	...	...	...	596	...
Telegraph Arms ...	...	835	...	835	...	...	835	...	...	...	...	...	...	...	...	...
Totals ...	131,385½	24,821	37	156,243½	54,203	10,257½	29,054	41,473	11,708½	2,600	1,426½	424	3,741	229	1,123	4

* May include a quantity of Hewn Sleepers.

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

APPENDIX 2K.

Summary of Exports of Forest Produce since 1836.

Year.	Timber.		Sandalwood.		Tanning Bark.	Essential Oils.*	Year.	Timber.		Sandalwood.		Tanning Bark.	Essential Oils.*
	Loads.	Value.	Tons.	Value.	Value.	Value.		Loads.	Value.	Tons.	Value.	Value.	Value.
1836...	200	£ 2,500	...	...	...	...	1882 ...	18,730	£ 93,650	9,605	£ 96,050	...	...
1837 ...	...	...	...	...	...	...	1883 ...	19,940	79,760	7,031	56,250	...	...
1838 ...	...	...	...	...	...	...	1884 ...	17,234	68,936	2,620	20,960	...	...
1839 ...	...	...	...	...	...	...	1885 ...	16,963	67,850	4,527	36,216	...	...
1840 ...	...	...	...	...	...	...	1886 ...	12,523	50,092	3,431	27,450	...	...
1841 ...	...	...	...	...	...	...	1887 ...	7,096	23,384	4,317	34,533	...	...
1842 ...	...	...	...	...	...	...	1888 ...	10,515	42,060	4,470	33,525	...	...
1843 ...	...	...	...	...	...	...	1889 ...	15,770	63,080	6,385	57,465	...	...
1844 ...	b	163	...	...	...	...	1890 ...	23,444	82,052	5,136	51,355	...	...
1845 ...	...	...	...	...	...	...	1891 ...	25,479	89,179	3,760	37,600	...	...
1846 ...	51	255	32	320	...	...	1892 ...	21,653	78,419	5,716	42,870	...	...
1847 ...	244	1,120	370	4,444	...	...	1893 ...	10,259	33,888	3,893	32,160	...	...
1848 ...	67	333	1,335	13,353	...	...	1894 ...	21,274	74,804	2,784	23,430	...	...
1849 ...	...	...	...	...	...	...	1895 ...	25,105	88,146	3,851	30,863	...	...
1850 ...	210	1,048	...	...	...	...	1896 ...	30,912	116,420	6,843	63,800	...	...
1851 ...	25	268	219	1,593	...	...	1897 ...	47,366	192,451	5,852	49,450	...	...
1852 ...	141	806	...	...	...	...	1898 ...	81,723	326,195	4,349	31,812	...	...
1853 ...	1,044	5,220	...	...	...	...	1899 ...	138,271	553,198	4,084	29,719	...	...
1854 ...	1,170	7,023	...	...	...	...	1900 ...	114,508	458,461	5,095	39,038	...	...
1855 ...	1,538	12,076	...	...	...	...	1901 ...	143,012	572,354	8,864	73,931	...	...
1856 ...	1,410	9,671	...	...	...	...	1902 ...	125,135	500,533	7,995	61,771	...	...
1857 ...	1,334	9,449	280	2,524	...	...	1903 ...	154,969	619,705	4,406	37,913	859	32,376
1858 ...	585	2,340	745	7,455	...	...	1904 ...	161,446	654,949	4,510	25,417	...	154,087
1859 ...	1,345	6,051	1,278	17,259	...	...	1905 ...	174,190	689,943	5,521	38,817	...	140,720
1860 ...	1,096	4,932	1,687	16,360	...	...	1906 ...	c176,614	708,993	8,848	65,999	...	93,773
1861 ...	555	2,497	2,558	24,945	...	...	1907 ...	c128,091	511,923	9,212	77,668	...	79,934
1862 ...	1,376	7,151	2,393	21,541	...	...	1908 ...	c197,390	813,591	9,564	77,668	...	59,633
1863 ...	658	2,963	2,307	25,265	...	...	1909 ...	c216,609	867,419	4,805	37,456	...	93,733
1864 ...	1,166	5,508	2,724	24,520	...	...	1910 ...	c241,432	972,698	8,228	70,775	...	...
1865 ...	3,679	15,693	1,686	13,490	...	...	1911 ...	c248,990	936,341	6,907	65,506	83,470	...
1866 ...	1,713	6,849	2,965	23,722	...	...	1912 ...	c225,942	903,396	3,154	27,533	49,094	...
1867 ...	1,135	4,541	2,305	18,442	...	...	1913 ...	c272,397	1,089,481	6,260	47,589	47,377	...
1868 ...	160	638	3,256	26,045	...	...	1914d ...	c125,595	502,153	4,702	39,800	18,197	e 5
1869 ...	3,598	14,273	4,124	32,998	...	...	1915e ...	c190,370	808,392	8,375	78,926	6,127	e 381
1870 ...	3,144	17,551	6,112	48,890	...	...	1916e ...	108,642	441,991	6,271	61,331	10,208	e 1,102
1871 ...	4,370	15,304	3,366	26,926	...	...	1917e ...	77,813	310,893	7,230	72,669	18,959	e 2,060
1872 ...	740	2,590	3,942	31,536	...	...	1918e ...	68,725	274,141	6,494	81,834	16,886	e 3,995
1873 ...	1,363	4,771	6,292	62,916	...	...	1919e ...	82,715	344,119	8,998	117,072	18,875	e 3,987
1874 ...	6,012	24,192	7,057	70,572	...	...	1920e ...	101,306	487,666	13,945	233,536	22,121	e 3,704
1875 ...	6,847	23,965	6,646	66,465	...	...	1921e ...	196,325	1,162,735	10,839	181,801	23,073	e 10,107
1876 ...	4,331	23,743	6,577	65,772	...	...	1922e ...	166,195	1,063,475	3,990	54,769	13,328	e 6,878
1877 ...	6,723	36,979	4,247	31,851	...	...	Total	4,355,517	18,425,552	350,034	3,298,191	988,330	32,219
1878 ...	11,618	63,902	4,675	35,064	...	...					
1879 ...	12,545	69,742	4,667	35,001	...	...					
1880 ...	13,251	66,252	5,097	51,970	...	...					
1881 ...	15,855	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 2L.

Summary of Imports of Timber, Tanning Materials and
Essential Oil, 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
Totals	3,039,930	61,502	87,464

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

APPENDIX 3A.

TIMBER CONCESSIONS IN FORCE AS AT THE 30TH JUNE, 1922.

Concessionaire.	No.	Locality.	Term.	Original Area.	Present Area.
				acres.	acres.
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 31-12-1924		
Millars' T. & T. Co., Ltd. ...	12/2	Sussex ...	15-1-1883 to 14-1-1925	100,000 46,000	80,853 39,580
			Total ...	396,000	370,433

APPENDIX 3B.

TIMBER LEASES IN FORCE AS AT THE 30TH JUNE, 1922.

Lessee.	No.	District.	Term.	Original Area.	Present Area.
				acres.	acres.
Ainslie, James ...	145/113	Jarrahwood ...	1-1-1899 to 31-12-1923	4,480	4,389
Ainslie, James ...	149/113	Jarrahwood ...	1-1-1899 to 31-12-1923	4,480	4,092
Ainslie, James ...	150/113	Jarrahwood ...	1-1-1899 to 31-12-1923	4,480	3,522
Millars' T. & T. Co., Ltd. ...	186/113	Collie ...	1-1-1899 to 31-12-1923	27,000	16,012
Millars' T. & T. Co., Ltd. ...	227/113	Collie ...	1-1-1901 to 31-12-1925	4,480	2,743
Millars' T. & T. Co., Ltd. ...	228/113	Collie ...	1-1-1901 to 31-12-1925	4,480	4,130
Millars' T. & T. Co., Ltd. ...	229/113	Collie ...	1-1-1901 to 31-12-1925	4,480	3,962
Millars' T. & T. Co., Ltd. ...	230/113	Collie ...	1-1-1901 to 31-12-1925	4,480	4,480
Good, Frederick Daniel ...	244/113	Pinjarra ...	1-7-1899 to 30-6-1924	17,280	13,259
Good, Frederick Daniel ...	257/113	Donnybrook ...	1-10-1899 to 30-9-1924	33,280	28,876
Millars' T. & T. Co., Ltd. ...	261/113	Pinjarra ...	1-30-1899 to 30-9-1924	58,270	22,937
Wittenoom, Edward Horne ...	269/113	Collie ...	1-10-1899 to 30-9-1924	5,000	2,080
Macmurtrie, William ...	288/113	Donnybrook ...	1-7-1900 to 30-6-1925	36,960	12,637
Ainslie, James ...	291/113	Donnybrook ...	1-1-1901 to 31-12-1925	17,920	17,308
Millars' T. & T. Co., Ltd. ...	296/113	Collie ...	1-1-1900 to 31-12-1924	11,520	4,101
Millars' T. & T. Co., Ltd. ...	297/113	Collie ...	1-1-1900 to 31-12-1924	13,440	12,771
Millars' T. & T. Co., Ltd. ...	299/113	Pinjarra ...	1-7-1900 to 30-6-1925	19,840	18,795
Ainslie, James ...	309/113	Collie ...	1-4-1901 to 31-3-1926	21,310	793
McNeil, Alexander James ...	322/113	Collie ...	1-4-1902 to 31-3-1927	44,800	22,024
Wittenoom, Edward Horne ...	325/113	Collie ...	1-4-1902 to 31-3-1927	1,280	1,197
Wittenoom, Edward Horne ...	330/113	Pinjarra ...	1-7-1902 to 30-6-1927	10,240	7,781
Smith, Henry Teesdale ...	331/113	Pinjarra ...	1-1-1903 to 31-12-1927	9,600	7,131
			Total ...	359,100	215,020

APPENDIX 3C.

SAW MILL PERMITS IN FORCE AS AT THE 30TH JUNE, 1922.

Permit Holder.	Original No.	Regranted as No.	Locality.	Term.	Original Area.	Present Area.
					acres.	acres.
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 30-6-1923	4,700	4,700
Bunning Bros., Ltd. ...	9/11	94/11	Collie ...	1-10-1916 to 30-6-1922	10,000	10,123
Preston Valley Sawmills, Ltd. ...	10/11	95/11	Noggerup ...	1-1-1917 to 31-12-1922	19,800	17,600
Swan Sawmills, Ltd. ...	14/11	92/11	Lowden ...	1-4-1917 to 31-3-1923	9,000	6,568
Bunning, Robert ...	15/11	96/11	Argyle ...	1-4-1917 to 30-6-1923	5,300	5,300
Bunning Bros., Ltd. ...	25/11	99/11	Collie ...	1-7-1918 to 30-6-1923	10,000	9,984
State Saw Mills ...	27/11	...	Near Dwellingup ...	1-1-1909 to 31-12-1922	20,001	18,929
Port & Co., Ltd. ...	34/11	...	Pindalup ...	1-7-1910 to 30-6-1931	28,510	28,510
Bunning Bros., Ltd. ...	36/11	97/11	Collie ...	1-4-1917 to 30-6-1923	10,000	9,986
Lewis, Francis Jas.; Reid, F. W. S.	37/11	inc. 51/11	West Collie ...	1-1-1910 to 31-12-1922	6,000	19,697
Wilgarrup Karri and Jarrah Co., Ltd.	42/11	...	Jarnadup ...	1-4-1910 to 31-3-1931	23,000	21,499
Buckingham Bros. ...	44/11	...	Muja ...	1-7-1910 to 30-6-1922	17,960	17,730
Commissioner of Railways ...	60/11	...	Yourdanning ...	1-4-1912 to 31-3-1923	38,000	38,000
The Kauri Timber Co., Ltd. ...	61/11	late 12/11	Nannup ...	1-1-1912 to 31-12-1924	58,000	55,419
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	38,530
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	25,878
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	76,008
Westralian Powel Wood Process, Ltd.	87/11	...	Donnelly River ...	1-1-1919 to 31-12-1929	15,000	15,000
Minister for Works and Industries	86/11	...	Manjimup ...	1-7-1916 to 30-6-1926	143,000	142,509
Wandoo Timber Co., Ltd. ...	89/11	...	Muja ...	1-10-1916 to 30-9-1922	37,000	37,320
			Total ...		798,207	792,071

APPENDIX 3d.

HEWING PERMITS IN FORCE AS AT THE 30TH JUNE, 1922.

Permit Holder.	No.	Locality.	Term.		Original Area.	Present Area.
			From	To		
Johnson, A. M.	1	Noggerup	26-2-17	28-2-23	2,200	960
Plavin, Chas.	34	Worsley	10-4-18	9-4-23	4,700	4,679
Parsons, C. E.	71	Brookhampton	23-5-19	23-5-23	148	148
Faulkner, R. J.	142	Muja	1-9-20	31-8-22	1,000	1,000
Carter, A.	191	Jarrahowood	1-3-21	31-12-22	1,000	1,000
Kelly, Thos.	192	Jarrahowood	1-3-21	31-12-22	900	900
Aubin, L.	193	Quilergup	1-3-21	31-12-22	1,262	1,262
Sanford, B. J.	199	Argyle	1-3-21	31-12-22	1,300	1,300
Scott, J. H.	200	Boyanup	1-3-21	31-12-22	1,660	1,491
Ribe, W. F.	211	Sawyers' Valley	1-5-21	31-12-22	46	46
Wood, G. E.	213	Donnybrook	1-5-21	31-12-22	500	500
Bunney, A. R.	227	Kelmescott	1-1-22	31-12-22	379	379
Jackson, A. E.	234	Margaret River	1-11-21	31-10-22	9,630	9,630
Jackson, A. E.	236	Donnybrook	1-11-21	31-10-22	2,011	2,011
Jackson, A. E.	237	Collie	1-11-21	31-10-22	7,500	21,950
Jackson, A. E.	238	Bridgetown	1-11-21	31-10-22	2,680	2,680
Jackson, A. E.	239	Balingup	1-11-21	31-10-22	1,680	1,680
Toovey, H. W.	240	Bridgetown	1-11-21	31-10-22	1,280	1,280
Jackson, A. E.	246	Redmond	1-12-21	30-11-22	12,500	12,500
Jackson, A. E.	248	Bunbury	1-1-22	31-12-22	153	153
Jackson, A. E.	250	Greenbushes	1-1-22	31-12-22	285	285
Davies, Jos.	251	Greenbushes	1-1-22	31-12-22	210	210
Kendall, Jno.	255	Sawyers' Valley	1-1-22	31-12-22	670	670
Jackson & Rodgers, Ltd.	286	Kirup	1-5-22	30-4-23	1,440	1,440
Flynn, J.	287	Worsley	1-5-22	30-4-23	1,580	1,580
Jackson & Rodgers, Ltd.	288	Bunbury	1-5-22	30-4-23	752	752
Sartori, Geo. & Jno.	289	Nannup	1-5-22	30-4-23	5,400	5,400
Sexton, J. W.	290	Nannup	1-5-22	30-4-23	1,760	1,760
Bolton, E. H.	293	Bridgetown	1-6-22	31-5-23	464	464
Jackson & Rodgers, Ltd.	294	Wilgarrup	1-6-22	31-5-23	1,300	1,300
Jackson & Rodgers, Ltd.	295	Manjimup	1-6-22	31-5-23	412	412
					66,802	79,822

APPENDIX 3E.

S. W MILLING PERMITS IN FORCE AS AT THE 30TH JUNE, 1922.

Permit Holder.	No.	Locality.	Term.		Original Area.	Present Area.
			From	To		
Harper, A. J.	49	Albany	16-9-18	15-9-22	1,282	1,282
Plavin, Chas.	54	Inglehope	15-10-18	14-10-28	6,520	7,600
Adelaide Timber Co., Ltd.	57	Wilga	28-11-18	30-9-22	15,775	15,755
Mitchell & Ryan	79	Hester	27-6-19	25-6-23	1,720	1,720
Markey & Sons	90	Bridgetown	19-8-19	18-11-22	1,100	1,100
Swan Saw Mills, Ltd.	91	Quilergup	22-8-19	21-8-29	15,800	15,800
Smith, A.	97	Collie	2-9-19	1-3-23	3,150	3,150
Farley, D. V. C.	98	Donnybrook	30-9-19	29-9-22	550	550
Plavin, Chas.	101	Wuraming	20-11-19	19-11-24	5,000	3,100
Buckingham Bros.	106	Muja	25-11-19	24-11-24	5,200	5,200
Collie Land & Timber Co., Ltd.	107	Bingham River	29-11-19	28-11-24	8,870	8,344
Holmes, T. H.	114	Dwellingup	25-2-20	24-2-23	2,860	2,800
Mann, A. S.	118	Pinjarra	29-3-20	28-3-23	7,724	7,724
Groth, H. A.	141	Marbellup	28-6-20	27-6-22	1,000	1,000
Timber Corporation, Ltd.	144	Palgarup	15-9-20	14-9-22	1,000	1,000
Nicholson, Jno.	145	Barabup	1-9-21	31-8-24	10,000	10,000
Bunning Bros., Ltd.	147	Capel	27-8-20	30-6-23	600	600
Jenkins, W. M.	155	Balingup	1-12-20	30-11-22	1,104	1,104
Grist & Nicholas	156	Capel River	1-1-21	31-12-22	1,300	1,300
Plavin, Chas.	157	Bowelling	1-11-20	31-10-25	35,500	35,500
Millars T. & T. Co., Ltd.	164	Jarrahowood	1-1-21	31-12-22	2,580	2,580
Whistler Bros.	167	Bridgetown	1-1-21	31-12-22	1,500	1,500
Jackson, & Rodgers, Ltd.	187	Glenlynn	1-3-21	28-2-23	3,400	3,400
Thompson, G. P.	188	Argyle	1-3-21	28-2-23	760	722
Groth, H. A.	197	Marbellup	1-3-21	28-2-23	1,000	1,000
Steele, H.	198	Albany	1-3-21	28-2-23	2,050	2,050
Lewis & Reid, Ltd.	204	Mullalyup	1-5-21	30-4-23	8,000	8,000
Talbot, A. J.	210	Collie	1-6-21	31-5-23	5,000	5,000
Timber Corporation, Ltd.	216	Greenbushes	1-4-21	31-3-31	34,800	34,900
Waters, A.	218	Sawyers' Valley	1-7-21	30-6-23	190	190
Douglas Bros.	226	Kalgan River	1-9-21	31-8-22	200	200
Hurst & Reilly	229	Boyanup	1-10-21	30-9-22	1,344	1,344
Douglas Bros.	241	Kalgan River	1-12-21	30-11-22	3,000	3,000
Carter, V. E.	242	Balingup Brook	1-12-21	30-11-22	1,800	1,800
Miller, E. E.	243	Donnybrook	1-12-21	30-11-22	50	50
Waters, A.	262	Sawyers' Valley	1-2-22	31-7-22	10	10
Swan Saw Mills, Ltd.	263	Jarrahowood	1-2-22	31-1-23	1,250	1,250
Wilson, E.	273	Mawson & Eriken	1-4-22	31-3-23	218	218
Lewis & Reid, Ltd.	277	Allanson	1-4-22	31-3-23	40	40
Lawson, S. E.	278	Collie	1-4-22	31-3-23	1,730	1,730
Lawson & Muschamp	281	Collie	1-5-22	30-4-23	3,732	3,732
Wandoo Timber Co., Ltd.	282	Collie	1-4-22	31-3-23	960	960
Bunning Bros., Ltd.	283	Collie	1-4-22	31-3-23	320	320
					199,729	198,625

APPENDIX 3f.

FIREWOOD PERMITS IN FORCE AS AT THE 30TH JUNE, 1922.

Permit Holder.	No.	Locality.	Term.		Original Area.	Present Area.
			From	To		
					acres.	acres.
Morris, C. G. ...	66	Albany ...	30-4-19	29-4-23	340	340
Brady, M. J. ...	78	Albany ...	9-9-19	8-9-22	1,290	1,290
Smith, Jas. and Jno. ...	113	Kalamunda ...	18-2-20	17-2-23	395	395
Georgeff, M. ...	130	Balcatta ...	17-5-20	16-5-23	1,180	1,180
Nicholls, J. H. ...	135	Kalamunda ...	9-6-20	8-12-22	1,500	1,500
Blamire, R. ...	138	Kalamunda ...	1-6-20	30-11-23	4,400	4,400
Trew, S. G. ...	175	Sawyers' Valley ...	1-1-21	31-12-22	600	600
Trew, S. G. ...	176	Sawyers' Valley ...	1-1-21	31-12-22	600	600
McMullen, W. ...	185	Warbrook ...	1-3-21	28-2-23	575	575
Young, J. ...	203	Helena River ...	2-4-21	...	13,400	13,400
Hunter, A. A. ...	205	Clackline ...	1-5-21	30-4-23	600	600
Ribe, W. F. ...	212	Sawyers' Valley ...	1-5-21	31-12-22	46	46
Forté, N. G. ...	219	Redmond ...	1-8-21	31-7-23	5,900	5,800
Faul, W. H. ...	224	Wuraming ...	1-9-21	31-8-22	6,940	6,940
Laurence, E. ...	230	Marbellup ...	1-10-21	30-9-22	590	590
Barrett, Bros. ...	231	Lake Bangup ...	1-10-21	30-9-22	480	480
Harvey, A. R. ...	232	Gledhow ...	1-10-21	30-9-22	1,635	1,635
Orgill, W. G. ...	244	Balcatta ...	1-12-21	30-11-22	1,180	1,180
Ray, A. G. ...	247	Amphion ...	1-12-21	30-11-22	2,500	2,500
Firms, G. ...	253	Wundowie ...	1-1-22	31-12-22	1,840	1,840
Anderson, G. ...	259	Barton's Mill ...	1-1-22	31-12-22	7,130	7,130
Kent, G. ...	260	Sawyers' Valley ...	1-1-22	31-12-22	506	506
Morton and Savell	261	Lion Mill ...	1-1-22	31-12-22	1,500	1,500
Dean, G. ...	264	Nannup ...	1-4-22	31-3-23	840	840
Newton and Reynolds	265	Chidlow ...	1-4-22	31-12-22	3,268	1,285
Colquhoun and Farrell	266	Chidlow ...	1-4-22	31-12-22	205	205
Trew, W. ...	267	Sawyers' Valley ...	1-4-22	31-12-22	570	570
Weston, F. J. ...	268	Sawyers' Valley ...	10-3-22	31-12-22	1,217	1,217
Saunders, J. ...	269	Pickering Brook ...	10-3-22	31-12-22	4,000	4,000
Eatts, and Cadwallader	270	Pickering Brook ...	10-3-22	31-12-22	1,863	1,863
Anderson, G. ...	272	Pickering Brook ...	10-3-22	31-12-22	4,318	4,318
Hadley, S. A. D. ...	274	Pickering Brook ...	1-4-22	31-3-22	950	950
Anderson, G. ...	275	Ludlow ...	1-4-22	31-12-22	4,000	4,000
Laurence, E. ...	284	Pickering Brook ...	1-4-22	31-3-23	950	950
Laurence, E. ...	285	Albany ...	1-4-22	31-3-23	950	950
Ferguson, J. H. ...	285	Marbellup ...	1-4-22	31-3-23	950	950
Gentle, A. L. ...	291	Beechina ...	1-6-22	31-12-22	1,680	1,680
Houston, W. G. ...	292	Woorlooloo ...	20-5-22	19-5-23	3,500	3,500
	299	Chidlow ...	1-5-22	31-12-22	1,095	1,095
					84,533	82,450

APPENDIX 3g.

MISCELLANEOUS PERMITS IN FORCE AS AT THE 30TH JUNE, 1922.

Permit Holder.	No.	Locality.	Term.		Original Area.	Present Area.
			From	To		
					acres.	acres.
Rowley Forest Products Co., Ltd. ...	1A	All waste Crown Lands	1-3-15	30-4-25	...	...
Hall, W. R. ...	104	Kalgoorlie ...	1-10-19	31-7-29	4,400,000	4,400,000
Western Fur and Leather Co., Ltd. ...	163	Bridgetown ...	1-12-20	30-11-22	48,000	48,000
Braddock, C. L. ...	179	North West areas	1-1-21	31-12-25	*70,000	*70,000
					sq. miles	sq. miles
Johnson and Lynn Ltd. ...	214	Collie ...	10-5-21	30-4-31	1,000,000	1,000,000
Cambell, H. M. ...	233	Pinjarra ...	1-11-21	31-10-31	50,000	39,670
Beard, G. ...	276	Derby ...	10-4-22	9-7-22	...	...
Amalgamated Collieries of W.A., Ltd.	279	Collie ...	1-4-22	31-3-23	304	304
Amalgamated Collieries of W.A., Ltd.	280	Collie ...	1-4-22	31-3-23	750	750
Harris, C. J. ...	296	Donnybrook ...	1-6-22	31-7-22	...	...
Kingia Fibre Co., Ltd. ...	297	Lake Clifton ...	1-6-22	31-5-23	3,550	3,550
					5,502,604	5,492,274

* Not included in total.

APPENDIX 3h.

SUMMARY OF APPENDICES 3A TO 3G.

Number in Force.	Class of Holding.	Total Areas.	
		Original.	Present.
		acres.	acres.
3	Timber Concessions (Appendix 3A) ...	396,000	370,433
22	Timber Leases (Appendix 3B) ...	359,100	215,020
28	Sawmill Permits (Appendix 3c) ...	798,207	792,071
31	Hewing Permits (Appendix 3d) ...	66,802	79,822
43	Sawmilling Permits (Appendix 3E) ...	199,729	198,625
38	Firewood Permits (Appendix 3F) ...	84,533	82,450
11	Miscellaneous Permits (Appendix 3G) ...	*5,502,604	*5,692,274
	Total ...	7,306,975	7,230,695

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

APPENDIX 4.

LIST OF SAWMILLS.

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.
ALBANY DISTRICT.												
Albany Timber Co., Denmark	Oct., 1921	P.P. Loc. 2136 ...	Circular saw ...	15	M. Ch. 1 0	M. Ch. ...	M. Ch. 5 40	M. Ch. 37 0	1½	50	s. d. 10 4	Cuts Karri mainly and Jarrah fruit cases. Works intermittently.
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.
Douglas Bros., Kalgan ...	July, 1921	P.P. Loc. 1498 ...	do. ...	25	0 40 to mill	...	13 0	At Albany	1	40	12 6 conveyed by Launch	Cutting Sheoak and Jarrah for fruit cases. Operating Permits 226 and 241. Works intermittently.
Groth & Adams, Marbellup	Feb., 1921	P.P. Loc. 723 ...	do. ...	6	1 40	...	0 15	12 0	1	40	6 10	Cutting Sheoak for fruit cases and barrel staves. Operating permits Nos. 141 and 197.
Harper, A. J. Albany ...	1918	P.P. Town Lot 105	do. ...	12	5 0	...	0 40	At Albany	1	50	3 0	Cutting Sheoak for fruit cases, staves, furniture and firewood. Operating Permit 49. Works intermittently.
Hawkins, A. W., Porongorups	1919	P.P. Loc. 464 ...	Circular saw ...	40	0 20 to mill	...	13 0	31 0	1½	50	19 1	Cutting Karri for fruit cases. Mill 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.
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. Works intermittently.
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.
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
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 ...	do. ...	10	1 20	...	3 0	45 0	4	40	...	Cutting Jarrah sleepers and scantling.
Lindsey, W., Greenbushes ...	1921	P.P. Loc. 797 ...	do. ...	12	0 50 to mill	...	1 0	54 0	2	40	...	Cutting Jarrah sleepers, scantling, fruit cases, etc.
Machin, H. J., Bridgetown ...	1918	P.P. Loc. 767 ...	do. ...	12	...	...	11 0	...	10 doz. fruit cases	90	...	Cutting Jarrah fruit cases only.
Machin, J. H., Glentullock ...	1918	P.P. Loc. 620 ...	do. ...	6	...	...	8 0	75 0	½	75	...	Cutting Jarrah fruit cases, etc., for own use.
Markey & Son, Bridgetown	22-11-21	P.P. Loc. 2023 ...	do. ...	8	...	...	1 40	60 0	½	33	...	Cutting Jarrah fruit cases, scantling and sleepers. Operating Permit 90.
Mitchel & Ryan, Hester ...	July, 1919	P.P. Loc. 5290 ...	do. ...	16	1 40 to mill	...	3 0	...	1½	34	...	Cutting Jarrah fruit cases, scantlings and sleepers. Operating Permit 79.

Smith, H., Winningup Road	1920	P.P. Loc. 6060 ...	do. ...	8	0 40 to mill	...	4 0	60 0	$\frac{1}{2}$	60	...	Cutting Jarrah fruit cases for own use and sale.
Sticpivich, W. H., Bridge town	1921	P.P. Loc. 2887 ...	do. ...	12	1 0 to mill	...	5 0	60 0	1	40	...	Cutting Jarrah fruit cases, scantling and sleepers.
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 No. 216.
Whistler Bros., Dinninup ...	May, 1921	P.P. Loc. 1356 ...	Circular saw ...	32	2 0	...	6 0	79 0	8	48-52	15 2	Cutting Jarrah and Wandoo, sleepers, scantling, etc. Operating 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. Mill not working at present.
Buckingham Bros., Buckingham's Siding	1912	Permits 44/11, 83/11, and 106	Twin and Circular saw	26	1 52	8 0	0 60	53 0	14	49	12 5	Cutting Jarrah sleepers and building timbers.
Bunning Bros., Ltd., Lyall's Mill	1903	P.P. Lease 5747/56	Twin and Circular saws	200	1 0	5 0	6 0	49 0	30	50	13 1	Cutting Jarrah in all sizes. Operating permits 94/11, 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	...	Cutting Jarrah.
Connell, R. C., Collie	Oct., 1921	P.P. Loc. 798 ...	Circular saw ...	12	1 40 to mill	...	3 0	41 0	4	36	18 10	Cutting Jarrah for general use.
Lawson Bros., Collie	1921	Town Lot 196 ...	do. ...	16	1 60 to mill	...	0 30	41 0	2	50	10 10	Cuts Jarrah. Mill now closed. Late Permit No. 207.
Lewis & Reid, Ltd., Allanson	1917	S.M.P. 37/11, 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.
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.
Millars' Timber and Trading Co., Ltd., Hoffman's Mill	1920	Timber lease 261/113	Twin and Circular saws	60	1 0	3 0	18 0	37 0	18-79	48-8	10 4	Cuts Jarrah. Mill not working at present.
Millars' Timber & Trading Co., Ltd., No. 1, Mornington	1898	Timber lease 229/113	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.
Millars' Timber & Trading Co., Ltd., No. 2, Mornington	1898	Timber lease 230/113	Twin and Circular saws	60	0 30	20 0	6 60	26 0	45	44	9 4	Cuts all classes of Jarrah timber, including fruit cases. Mill not working.
Millars' Timber & 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	Cuts Jarrah. Not working at present.
Palmer, R., Collie ...	1919	Collie Town Lot 529	Circular saw ...	24	2 0 to mill	...	0 20	41 0	2	50	No export	Cuts Jarrah for local use. Mill closed at present.
Plavin, Chas., Bowelling ...	Feb., 1921	Permit 157, S.M.S. 16/33	Twin and Circular saws	35	1 4	...	0 25	64 0	7 $\frac{1}{2}$	47	13 5	Cutting Jarrah for export and local use.
State Saw Mills, No. 6, Worsley	April, 1921	S.M.P. 82/11 ...	Twin and Circular saws	50	1 0 to mill	...	5 0	28 0	8	48	...	Cutting Jarrah sleepers and scantling.
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	...	Cutting Jarrah sleepers, boards, and scantling.
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.
DONNYBROOK DISTRICT.												
Adams & Best, Donnybrook	May-June, 1921	P.P. Loc. 55 ...	do. ...	10	1 0	...	1 60	26 0	2	50	8 4	Cuts Jarrah. Not working during 1922.
Adelaide Timber Co., Ltd., Wilga	1909	Permit 57, S.M.S. 14/33	do. ...	42	1 20	3 0	Nil	58 0	7	45	12 10	Cutting Jarrah sleepers, building, and dressed timber, etc.
Banfield, E. B., Boyanup ...	Dec., 1921	P.P. Loc. 54 ...	do. ...	60	...	40 0	60 0	15 0	5 in round	45	7 4	Cutting Marri for fruit cases.
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.
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.

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.	Per centage of recovery.	Rate per ton on Sawn Timber to Port of shipment.	Remarks.
					M. Ch.	M. Ch.	M. Ch.	M. Ch.			s. d.	
Bunning Bros., Ltd., Argyle	...	P.P. Loc. 2170 ...	Twin and Circular saws	60	1 0	10 0	15 0	21 0	15	45	8 4	Cutting Jarrah for local use and export. Operating S.M.P. 96/11.
Crock & Foster, Donnybrook	In course of erection	Timber lease No. 288/113	do. ...	26	1 0	Landing at mill	13 0	9 0	12	...	6 6	Operations not yet commenced.
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.
Farley, D. V. C., Goodwood	1-9-1919	Crown Lands Permit 98	do. ...	30	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.
Grist, Nicholas & Co., Donnybrook	1920	P.P. Loc. 724 ...	do. ...	20	...	1 0	8 0	25 0	4	38	8 10	Cutting Jarrah for general use, export, and fruit cases. Operating on private property and Permit 156.
Hurst & Reilly, Boyanup ...	April, 1922	Crown Lands Permit 229	Twin and Circular saws	6	...	20 0	3 40	16 0	1	60	7 4	Cutting Jarrah fruit cases and other timber.
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.
Jones, T. B., Mumballup ...	...	P.P. Loc. 1405 ...	do. ...	7	...	0 20	1 0	43 0	3	70	11 1	Cutting Jarrah fruit cases for own use.
Lewis & Reid, Ltd., Mullalyup	May, 1921	P.P. Loc. 561 ...	Twin and Circular saws	20	1 20	At mill	0 40	41 0	8	37	10 10	Cutting Jarrah for export. Operating Permit 123.
Martin, R. M., Queenwood ...	1918	P.P. Loc. 629 ...	Circular saw ...	8	1 0	...	1 20	33 0	1½	70	9 7	Cutting Jarrah fruit cases, for own use only.
McSweeney & Scott, Boyanup	Sept., 1921	Crown Lands Permit 200	do. ...	8	1 0	At mill	1 40	15 0	2	70	7 4	Cutting Jarrah sleepers, fruit cases and scantling.
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.
Millars' Timber & 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.
Millars' Timber & Trading Co., Ltd., Wellington Mills	April, 1921	Timber lease 288/113	Twin and circular saws	26	1 0	1 0	13 0	9 0	12	50	6 6	Cutting general timbers.
Parmenter, S. T., Mullalyup	Nov., 1921	P.P. Loc. 1708 ...	Circular saw ...	6	0 10	...	1 0	41 0	4 doz ¾ flat fruit cases	75	10 10	Cutting Blackbutt. Fruit cases only.
Patroni, 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.
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.
Preston Valley Saw Mills, Ltd., Lowden	Feb., 1920	P.P. lease 48/822, S.M.S. 13/11A	Twin and circular saws	25	1 0	1 0	1 0	35 0	10-12	52	10 1	Cutting Jarrah, general sizes. Operating Saw Mill Permit 95/11.
Preston Valley Saw Mills, Ltd., Yabberup	Jan., 1921	P.P. lease 48/729...	do. ...	16	0 60 to mill	...	1 0	29 0	5	50	10 7	Cutting Jarrah, sleepers and scantling.
Preston Valley Saw Mills, Ltd., Noggerup	1906	Crown Lands S.M.S. 13/11A	do. ...	40	1 0	4 0	On main line	48 0	14	40	11 3	Cutting Jarrah for fruit cases for local and export markets. Operating Saw Mill Permit 95/11.
Slattery, B., Ferguson ...	1919	P.P. Loc. 578 ...	Circular saw ...	4	1 0	At mill	8 0	9 0	½	75	No export.	Cutting Jarrah, Banksia, Marri and Peppermint. Fruit cases principally.

Thompson, G. P., Argyle ...	3-4-1921	P.P. Loc. 3217 ...	Twin and circular saws	6	...	1 0	1 20	19 0	$\frac{1}{2}$	4 9	8 4	...	Cutting Jarrah for own use and sale locally. Operating Permit 188.
Warner, W. A., (junr.) Mulalalyup	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.
JARRAHWOOD DISTRICT.													
Forests Department, Wonerup	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.
Group Settlers', Karridale ...	...	Crown Lands ...	Circular saw ...	10	...	0 60	2 40	5 0	4	45	...	...	Cutting Jarrah for Group Settlement cottages.
Kauri Timber Co., Ltd., Barabup	1909	P.P. Loc. 692, S.M.S. 7/11A	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. 7/11A	Band and circular saws	75	0 60	3 0	14 0	32 0	32	49.28	11 3	...	Cutting Jarrah sleepers and building timber.
Millars' Timber & Trading Co., Ltd., Jarrahwood	...	Permit 164 ...	Twin and circular saws	40	0 60	7 0	0 5	28 0	20	43	9 2	...	Cutting Jarrah timber.
Smith, J. F., Bibilup ...	Dec., 1920	Crown Lands Permit 120	Twin and circular saws	16	0 60	...	0 55	37 0	4-5	45	...	...	Cutting Jarrah timber. Dismantled, May, 1922.
Swan Sawmills Ltd., Claymore	1921	Crown Lands Permit 191	Circular saw ...	40	1 0	1 0	2 0	22 0	15	41	8 5	...	Cutting Jarrah timber.
MANJIMUP DISTRICT.													
Edwards, R. H., Balbarrup	Sept., 1921	P.P. Loc. 7407 ...	do. ...	8	0 5	...	13 0	90 0	$\frac{1}{2}$	50	15 8	No export	Cutting fruit cases, and Jarrah timber for own use.
Fanning, H. A., Balbarrup ...	Feb., 1921	P.P. Loc. 2278 ...	do. ...	6	0 20	...	7 0	90 0	$\frac{1}{2}$	50	15 8	No export	Cutting Jarrah fruit cases and timber for own use.
Glauder, F., Pemberton ...	Dec., 1921	P.P. Loc. 2720 ...	do. ...	6	0 40	...	21 0	93 0	$\frac{1}{2}$	50	15 11	No export	Cutting Jarrah, Marri, Sheoak and Banksia for own use.
Hornby, F. H., Balbarrup...	1921	P. P. 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.
Johnson, J., Balbarrup ...	1912	P.P. 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.
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.
State Sawmills, No. 1, Manjimup	5-12-1913	S.M.P. 86/11, S.M.S. 19/33	Vertical, twin and circular saws	240	0 60	12 0	4 0	90 0	39	40-44	15 8	No export and 5d. hauling	Cutting Jarrah and Karri timber for local and export trade.
State Sawmills, No. 2, Pemberton	1920	S.M.P. 85/11, Reserve 16354	Vertical and circular saws	400	0 40	9 0	17 0	93 0	50	40-45	15 11	...	Cutting Karri for local and export trade.
State Sawmills, No. 3, Pemberton	1913	S.M.P. 85/11, Reserve 16354	Twin and circular saws	280	0 40	9 0	17 0	93 0	50	40-45	15 11	...	Cutting Karri for local and export trade.
Timber Corporation Ltd., Palgarup	1921	P.P. Loc. 1024 ...	do.	25	1 0	2 0	2 60	85 0	10	40	15 3	...	Cutting Jarrah. Operates Permit 144. Mill closed down on 11th March, 1922. Construction work only being done at present.
Wilgarrup Karri and Jarrah Co., Ltd., Jarnadup	Apl. to Sept. 1911	S.M.P. 42/11, S.M.S. 7/33	Vertical and circular saws	75	0 30	7 0	0 30	93 0	34	39.65	15 11	...	Cutting Jarrah and Karri for local and export trade.

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.
					M.	Ch.	M.	Ch.	M.	Ch.					
MUNDARING DISTRICT.															
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.			
Curtis, Chisholm & Co., Caning 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.			
Dennis, H. J., Wanneroo ...	June, 1922	P.P. Loc. 2737 ...	do. ...	5½	...	60 0	...	...	6,000 fruit cases per yr.	65	...	Cutting fruit cases for local sellers.	
Millars' Timber & Trading Co., Ltd., Barton's	...	Concession 12/0 ...	Twin and circular saws	25	1 0	5 40	8 0	38 0	14	46	...	Cuts Jarrah sleepers and scantling. Mill has been closed since 27th March, 1922.			
Bettenay, J. & Sons, Karragullen	June, 1921	P.P. Loc. 403 ...	Circular saw ...	12	...	...	2 0	...	1	60	...	Cutting Jarrah fruit cases.	
Millars' Timber & Trading Co., Ltd., No. 1 Jarrahdale	1913	P.P. Loc. 282 ...	Twin and circular saws	110	1 20	21 0	7 0	30 0	45	45	9 5	Cutting Jarrah timber. Operating concession 12/0.			
Millars' Timber & Trading Co., Ltd., No. 2, Jarrahdale	1922	P.P. Loc. 282 ...	do. ...	55	1 20	21 0	7 0	30 0	22	45	9 5	Cutting Jarrah timber. Operating concession 12/0.			
Millars' Timber & Trading Co., Ltd., Mundijong	1919	P.P. Loc. 524 ...	Circular saw ...	20	...	...	1 0	30 0	17	82 ?	9 5	Cuts boards only from flitches supplied by other mills. Operating Concession 12/0. Mill was closed down on 15th February, 1922.	
Mann, A. S., Wundowie ...	Jan., 1921	P.P. Loc. 6649 ...	do. ...	12	3 0 to mill	...	0 4	53 0	2	50	...	Cutting Jarrah for local use.			
Pafmateer, G. H., Bickley ...	1919	P.P. Loc. 672 ...	do. ...	6	...	...	0 40	...	...	...	...	Cuts waste Jarrah into fruit cases. Mill closed, and is unlikely to start again.
Railway Department, Midland Junction	...	...	Band and circular saw	80	...	...	...	...	10	50	...	Cutting Tuart and Wandoo for own use.
Stinton, H., Karragullen ...	Jan., 1913	P.P. ...	Circular saw ...	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. Loc. 297 ...	do. ...	6	...	0 60	1 0	35 0	...	...	...	Cutting Jarrah fruit cases and scantling. Operating Permits 262 and 218.
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	Dec., 1921	P.P. Loc. 703 ...	do. ...	30	1 40	...	0 14	95 0	20	45	16 1	Cutting Jarrah on private property.			

Bailey Timber Co., Mandurah	Nov., 1921	P.P. Loc. 16 ...	Crosscut and circular saws	75	3 0 to mill	...	12 0	61 0	3	70	13 2	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.
Gittos & Arnold, Pinjarra ...	Jan., 1921	P.P. ...	Circular saw ...	16½	...	...	...	61 0	...	...	13 2	Cuts Jarrah fruit cases from billets from State Mills for local requirements. Mill closed on December, 1921, and has not worked since.
Millars' Timber & Trading Co., Ltd., Marrinup	1910-11	Timber lease 330/113	Twin and circular saws	36	0 60	2 0	...	73 0	12	50	14 2	Cutting Jarrah for local and export trade.
Millars' Timber & Trading Co., Ltd., Nanga Brook	1908	Timber lease 299/113	Twin, vertical, and circular saws	60	0 40	7 9	28 0	37 0	43-63	44	14 9	Cutting Jarrah for local and export trade.
Moss, F. A., Waroona ...	Oct., 1921	P.P. lease 383/80 ...	Circular saw ...	16	2 0	...	5 40	45 0	3½	45	11 4	Cutting Jarrah timber.
Patterson, J. H., Amphion...	1913-14	S.M.P. 81/11, S.M.S. 19/33	Twin and circular saws	35	0 60	2 40	0 60	82 0	5	...	15 4	Cutting Jarrah for local and export trade.
Plavin, C., Inglehope ...	1919	Permit 54 ...	do. ...	37	0 60	3 0	on line	82 0	16	42	...	Cutting Jarrah for local and export trade.
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.
Railway Department, No. 1, Dwellingup (operated by Mr. T. H. Holmes)	1912	Permit 114...	Twin and circular saws	30	2 0	landing at mill	on line	70 0	4	48	14 6	Cutting Jarrah for local and export trade.
Railway Department, No. 2, Dwellingup	Nov., 1912	S.M. Permit 78/11	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.
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 Sawmill, No. 4, Wuraming	1913	S.M.P. 79/11, S.M.S. 17/33	Twin and circular saws	30	0 60	4 40	0 60	90 0	22½	38	15 10	Cutting Jarrah for local and export trade.
State Saw Mill, No. 5, Holyoake	1911	S.M.S. 12/33, S.M.P. 27/11 and 81/11	do. ...	65	0 60	13 0	on line	77 0	47½	50	14 7	Cutting Jarrah for local and export trade.
State Saw Mill, 93-Mile siding operated by Federal Trading Co.	1920	P.P. Loc. 6403 ...	do. ...	26	1 60 to mill	...	on line	100 0	4½	40	16 6	Cuts Jarrah for local and export trade. Mill has ceased operations and may be removed.
Waroona Timber Co., Ltd., Waroona	June, 1921	P.P. Fouracre Estate	do. ...	64	1 20	Nil	5 40	40 0	6	40	sold at Siding	Cutting Jarrah sleepers and boards only.
Whittaker Bros., North Dandalup	1902	S.M.P. 84/11, S.M.S. 12/11A	do. ...	120	1 0	7 0	4 0	55 0	32	55	11 5	Cutting Jarrah for local trade.

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APPENDIX 5.

Table showing the number of various Timber Workers' Registration Certificates issued from 1st July, 1921 to 30th June, 1922, as compared with those issued during the year ended 30th June, 1921.

Variety of Registrations.	Number issued for year ended 30th June, 1921.	Number issued for year ended 30th June, 1922.
Hewers	286	421
Fallers	285	429
Haulers	113	123
Carters	49	45
Managers and Bush Foremen	42	59
Teamsters	25	37
Swampers	180	196
Firewood Cutters and Carters	242	208
Charcoal Burners and Carters	14	2
*Timber Getters	26	44
Horse Drivers	26	13
Barrel Stave and Billet Splitters	7	3
†Sandalwood Pullers	5	...
Blackboy and Kingia Grass Cutters	4	...
Whistle Boys	2	5
Shoemen ... ..	...	2
Beam Squarers ... ..	...	2
Engine Drivers ... ..	...	8
Hookmen ... ..	...	4
	1,306	1,601

* Working on Coal Mining Leases at Collie.

† Working on Special Sandalwood Permit at Carnarvon.

APPENDIX 6.

Table showing the number of Licenses issued from 1st July, 1921, to 30th June, 1922, as compared with those issued during the year ended 30th June, 1921.

License.	Number issued for year ended 30th June, 1921.	Number issued for year ended 30th June, 1922.
*Managers and Bush Foremen	6	15
Firewood	3,316	3,164
Mining Timber	183	78
Timber	6	22
Bark Strippers	46	40
Fence Post	16	22
Sandalwood Permits	636	537
	4,209	3,878

* These figures allude to the Goldfields only.

APPENDIX No. 7.

List of Herbarium Specimens collected and identified during the year ended 30th June, 1922,

Botanical Name.	Local Name.	Botanical Name.	Local Name.
<i>Abrus precatorius</i> , Linn. ...	African Lucky Bean.	<i>Beaufortia orbifolia</i> , F. v. M.	
<i>Abutilon Andrewsianum</i> , W. V. Fitzg.		" <i>sparsa</i> , R. Br. ...	Albany Bottle Brush.
<i>Acacia acuminata</i> , Benth. ...	Raspberry Jam.	" <i>squarrosa</i> , Schauer.	
" <i>aestivalis</i> , E. Pritzel		<i>Boronia viminea</i> , Lindl.	
" <i>aneura</i> , F. v. M. ...	Mulga.	<i>Boyra subulata</i> , Gardner, n. sp.	
" <i>Bidwilli</i> , Benth. ...	Mimosa.	<i>Bossiaea biloba</i> , Benth.	
" <i>doratoxylon</i> , A. Cunn. ...	Silver Wattle.	" <i>ornata</i> , Benth.	
" <i>Drummondii</i> , Lindl.		" <i>phylloclada</i> , F. v. M.	
" <i>erinacea</i> , Benth. ...	Centipede bush.	<i>Brachysema daviesioides</i> , Benth.	
" <i>farnesiana</i> , Willd. ...	Mimosa.	<i>Breweria pannosa</i> , R. Br.	
" <i>farnesiana</i> , var. <i>lenticularis</i> , Bailey.	Mimosa.	<i>Bromus arenarius</i> , Labill.	
" <i>hemignosta</i> , F. v. M. ...	Wattle.	<i>Bruguiera gymnorhiza</i> , Lam. ...	Black mangrove.
" <i>holsericca</i> , A. Cunn. ...	Wattle.	<i>Buchnera lucida</i> .	
" <i>impressa</i> , F. v. M.		" <i>multiflorus</i> , Benth.	
" <i>incurva</i> , Benth.		" <i>ramosissima</i> , R. Br.	
" <i>insolita</i> , E. Pritzel.		" <i>urticifolia</i> , R. Br.	
" <i>Killeri</i> , F. v. M.		<i>Bursaria spinosa</i> , Cav.	
" <i>latifolia</i> , Benth.		<i>Burtonia conferta</i> , D. C.	
" <i>ligustrina</i> , Meissn.		<i>Byblis gigantea</i> , Lindl.	
" <i>linarioides</i> , Benth.		" <i>limiflora</i> , Salisb.	
" <i>lineolata</i> , Benth. ...	Wire Bush.	<i>Callitris intratropica</i> , F. v. M. ...	Kimberley Cypress.
" <i>Luehmanni</i> , F. v. M.		" <i>Morrisoni</i> , R. T. Baker.	
" <i>Merrallii</i> , F. v. M. var. <i>Tam-</i> <i>minensis</i> , E. Pritzel.		" <i>glauca</i> , R. Br.	
" <i>pentadenia</i> , Lindl. ...	Karri Wattle.	<i>Calocasia antiquorum</i> Schott. ...	Kimberley Arum.
" <i>resino marginea</i> , W. F. Fitzg.	Goldfields Jam.	<i>Calothamnus Gilesii</i> , F. v. M.	
" <i>rostelifera</i> , Benth. ...	Coastal Wattle.	<i>Calythrix achaeta</i> , F. v. M.	
" <i>sericata</i> , A. Cunn. ...	Large leaved Wattle.	" <i>brachychaeta</i> , F. v. M.	
" <i>stigmatophylla</i> , A. Cunn.		" <i>empetroides</i> , Schauer.	
" <i>Stowardi</i> , Maiden		" <i>flavescens</i> , A. Cunn.	
" <i>subcaerulea</i> , Lindl. var. <i>sub-</i> <i>sessilis</i> , E. Pritzel.		" <i>microphylla</i> , A. Cunn. ...	Tree Calythrix.
" <i>suberosa</i> , A. Cunn. ...	Mimosa.	" <i>strigosa</i> , A. Cunn.	
" <i>Tanumbirinese</i> , Maiden.		<i>Candollea cuneiformis</i> , Labill.	
" <i>translucens</i> , A. Cunn.		" <i>teretifolia</i> , F. v. M.	
" <i>tumida</i> , F. v. M. ...	Pindan Wattle.	<i>Capparis lasiantha</i> , R. Br. ...	Caper plant.
<i>Acanthocarpus Preissii</i> , F. v. M.		<i>Cassisa lanceolata</i> , F. v. M. ...	Konkerberry.
<i>Actinostrobos acuminatus</i> , Parlat. ...	Cypress Pine.	<i>Careya australis</i> , F. v. M. ...	Mangaloo.
" <i>pyramidalis</i> , Miq. ...	Cypress Pine.	<i>Cassia artemisioides</i> , Gaud.	
<i>Adansonia Gregorii</i> , F. v. M. ...	Baobab Tree.	" <i>Chatelainiana</i> , Gaud.	
<i>Adenanthos Meissneri</i> , Lehm.		<i>Cassytha glabella</i> , R. Br. ...	Bush Dodder.
<i>Egiceras majus</i> , Gaertner. ...	Mangrove.	<i>Casuarina acutivalvis</i> , F. v. M. ...	Sheoak.
<i>Agonis juniperina</i> , Schauer. ...	Cedar.	" <i>campestris</i> , Diels.	
" <i>linearifolia</i> , Schauer. ...	Spearwood.	" <i>decussata</i> , Benth. ...	Karri Sheoak.
" <i>marginata</i> , Schauer.		" <i>Drummondiana</i> , Miq.	
<i>Albizia lebbek</i> , Benth. ...	Silk Tree.	" <i>glauca</i> , Sieb. ...	Swamp Oak.
<i>Andropogon affinis</i> , R. Br. ...	Spear grass.	" <i>horrida</i> , Herbert.	
" <i>procerus</i> , R. Br. ...	Lemon-scented grass.	" <i>humilis</i> , Ott and Dietr.	
<i>Amarantus pallidiflorus</i> , F. v. M.		" <i>microstachya</i> , Miq.	
<i>Andersonia caerulea</i> , R. Br. ...	Heather.	" <i>thuyoides</i> , Miq.	
" <i>sprengelioides</i> , R. Br.		<i>Celastrus Muellieri</i> , Benth.	
<i>Angianthus tomentosus</i> , Wendl. ...	Camel grass.	<i>Celtis philippinensis</i> , Blanco. ...	Whitewood.
<i>Anigozanthos pulcherrima</i> , Hook	Kangaroo Paw.	<i>Cheriops Candolleana</i> , Arnott. ...	Red Mangrove.
<i>Anthistiria avenacea</i> , F. v. M. ...	Kangaroo grass.	<i>Chamaexeros fimbriata</i> , (F. v. M.) Benth.	
" <i>membranacea</i> , Lindl. ...	Flinders grass.	<i>Cheilanthes tenuifolia</i> , Swartz.	
<i>Aspidium unitum</i> , Swartz.		<i>Chloanthes coccinea</i> , Bartl.	
<i>Asplenium fureatum</i> , Thunb. ...	Rock fern.	<i>Choretrum glomeratum</i> , R. Br.	
<i>Astartea fascicularis</i> , D.C. ...	Spearwood.	" <i>lateriflorum</i> , R. Br.	
<i>Astroloma Baxteri</i> , D. C.		" <i>pendulum</i> , Tovey and Morris.	
" <i>Candolleianum</i> , Sond.		<i>Cladium articulatum</i> , R. Br.	
" <i>Candolleianum</i> , var. <i>horri-</i> <i>dulum</i> , E. Pritzel.		<i>Cochlospermum heteronemum</i> , F. v. M.	Cotton Tree.
" <i>compactum</i> , R. Br. ...	Cushion bush.	<i>Codonocarpus cotinifolius</i> , F. v. M.	Mustard Tree.
" <i>divaricatum</i> , Sond.		<i>Comesperma flavum</i> , D. C.	
" <i>microcalyx</i> , Sond.		" <i>scoparium</i> , Steetz.	
" <i>pallidum</i> , R. Br.		<i>Commelina lanceolata</i> , R. Br.	
" <i>tectum</i> , R. Br.		<i>Conostephium Preissii</i> , Sond.	
" <i>Drummondii</i> , Sond.		<i>Conospermum teretifolium</i> , R. Br.	
<i>Atalaya hemiglauca</i> , F. v. M. ...	Myall.	<i>Conostylis bracteata</i> , Endl.	
<i>Athrixia australis</i> , Steetz.		" <i>bromelioides</i> , Endl.	
<i>Baeckea pentandra</i> , F. v. M.		<i>Convolvulus erubescens</i> , Sims.	
<i>Banksia attenuata</i> , R. Br.		<i>Corchorus sidoides</i> , F. v. M.	
" <i>Meissneri</i> , Lehm.		" <i>Walcotti</i> , F. v. M.	
" <i>Menziesii</i> , R. Br.		<i>Crotalaria crassipes</i> , Hook.	
" <i>occidentalis</i> , Labill.		" <i>Cunninghamii</i> , R. Br. ...	Green Bird Flower.
" <i>sphaerocarpa</i> , R. Br.		" <i>laburnifolia</i> , Linn.	
" <i>verticillata</i> , R. Br. ...	River Banksia.	<i>Cycas Lane-Pooli</i> , Gardner n. sp. ...	Palm.
<i>Bauhinia Cunninghamii</i> , Benth. ...	Bohemia tree.	" <i>media</i> , R. Br. ...	Palm.
<i>Beaufortia anisandra</i> , Schauer.		<i>Cynodon dactylon</i> , Pers.	
" <i>bracteosa</i> , Diels.		<i>Cymbidium canaliculatum</i> , R. Br.	Tree orchid.
" <i>micrantha</i> , Schauer.		<i>Cyperus congestus</i> , Wahl. ...	Nut grass.
		<i>Dampiera incana</i> , R. Br.	

APPENDIX 7—continued.

Botanical Name.	Local Name.	Botanical Name.	Local Name.
<i>Dampiera luteiflora</i> , F. v. M.		<i>Ficus glomerata</i> , Roxb. ...	Fig tree.
<i>Daviesia spinosissima</i> , Meissn.		" <i>leucotricha</i> , Miq. ...	"
<i>Denhamia obscura</i> , Meissn. ...	Boxwood.	" <i>nesophila</i> , Miq. ...	"
<i>Dicrastyles parvifolia</i> , F. v. M.		" <i>orbicularis</i> , A. Cunn. ...	"
<i>Diospyros nitens</i> , W. V. Fitzg. ...	Ebony.	" <i>perberula</i> , A. Cunn. ...	"
<i>Dodonaea amblyophylla</i> , Diels.	Native Hop.	<i>Flagellaria indica</i> , Linn. ...	Bamboo.
" <i>filifolia</i> , Hook. ...	"	<i>Frankenia glomerata</i> , Turcz.	
" <i>lanceolata</i> , F. v. M. ...	"	" <i>pauciflora</i> , D. C.	
" <i>physocarpa</i> , F. v. M. ...	"	<i>Franklandia fucifolia</i> , R. Br.	
<i>Drosera gigantea</i> , Lindl. ...	Sundew.	<i>Fugosia pulchella</i> , Gardner. n. sp.	
" <i>indica</i> , Linnk. ...	"	" <i>punctata</i> , Benth.	
" <i>petiolaris</i> , R. Br. ...	"	<i>Fusanus persicarius</i> , F. v. M. ...	Sand Plain Quandong.
<i>Dryandra pteridifolia</i> , R. Br. ...	Fern Leaf Dryandra.	<i>Gastrolobium velutinum</i> , Lindl. ...	White Gum Poison.
<i>Duboisia Campbelli</i> , A. Morrison. ...	Pituri.	<i>Gleichenia dichotoma</i> , Hook. ...	
<i>Ehretia urceolata</i> , F. v. M.		<i>Gompholobium obovatum</i> , Turcz.	
<i>Eragrostis chaetophylla</i> , Steud.		" <i>ovatum</i> , Meissn.	
<i>Eriocaulon quinquangulare</i> , Linn.		" <i>polymorphum</i> , R. Br.	
<i>Eremophila tuberculata</i> , Herbert. n. sp.		" <i>Shuttleworthii</i> , Meissn.	
<i>Eriostemon nodiflorus</i> , Lindl.		<i>Gomphrena canescens</i> , R. Br.	
" <i>Fitzgeraldi</i> , Andrews.		<i>Goodenia caerulea</i> , R. Br.	
<i>Erythrina vespertilio</i> , Benth. ...	Coral Tree.	" <i>geniculata</i> , R. Br. var.	
<i>Erythrophloeum Labouchei</i> , F. v. M.	Ironwood.	" <i>eriophylla</i> , Benth.	
<i>Eucalyptus alba</i> , Reinwardt. ...	Ridge Gum.	" <i>paniculata</i> , R. Br.	
" <i>annulata</i> , Benth. ...	Mallee.	" <i>pinifolia</i> , F. v. M.	
" <i>brachyandra</i> , F. v. M.	Tree.	" <i>pinnatifida</i> , Schlecht.	
" <i>calycogona</i> , Turcz. ...	Mallee.	" <i>scapigera</i> , R. Br.	
" <i>clavigera</i> , A. Cunn. ...	Gum Tree.	<i>Grevillea agrifolia</i> , A. Cunn.	
" <i>decipiens</i> , Endl. ...	White Gum.	" <i>bipinnatifida</i> , R. Br.	
" <i>dichromophloia</i> , F. v. M.	Kimberley Tree.	" <i>Brownii</i> , Meissn.	
" <i>diversicolor</i> , F. v. M. ...	Karri.	" <i>chrysodendron</i> , R. Br. ...	Honey Tree.
" <i>erythronema</i> , Turcz. var.	White Mallee.	" <i>cordata</i> , Gardner. n. sp.	
" <i>Roei</i> (?)		" <i>didymobotrya</i> , Meissn.	
" <i>eudesmioides</i> , F. v. M.		" <i>eriosachya</i> , Lindl.	
" <i>ficifolia</i> , F. v. M. ...	Scarlet Flowering Gum.	" <i>eryngioides</i> , Benth.	
" <i>Foelscheana</i> , F. v. M. ...	Bloodwood.	" <i>excelsior</i> , Diels.	
" <i>Guilfoylei</i> , Maiden. ...	Yellow Tingle Tingle	" <i>heliosperma</i> , R. Br.	
" <i>Houseana</i> , (W. V. F.) Maiden	Kimberley White Gum.	" <i>heteroneura</i> , W. V. Fitz.	
" <i>incrassata</i> , Labill. ...	Mallee.	" <i>Huegelii</i> , Meissn. var. <i>simplicifolia</i> .	
" <i>incrassata</i> , var. <i>conglobata</i> , M.		" <i>integrifolia</i> , Meissn. var. <i>incurva</i> , Diels.	
" <i>Jacksoni</i> , Maiden. ...	Red Tingle Tingle.	" <i>latifolia</i> , Gardner. n. sp.	
" <i>latifolia</i> , F. v. M. ...	Bloodwood.	" <i>mimosoides</i> , R. Br.	
" <i>leptopoda</i> , Benth. ...	Mallee.	" <i>nematophylla</i> , F. v. M.	
" <i>longicornis</i> , F. v. M. ...	Morrell.	" <i>ornithopoda</i> , Meissn.	
" <i>loxophleba</i> , Benth. ...	York Gum.	" <i>pectinata</i> , R. Br.	
" <i>megacarpa</i> , F. v. M. ...	Bullich.	" <i>pterosperma</i> , R. Br.	
" <i>microtheca</i> , F. v. M. ...	Coolibah.	" <i>quercifolia</i> , R. Br.	
" <i>miniata</i> , A. Cunn. ...	Woollybutt.	" <i>refracta</i> , R. Br.	
" <i>occidentalis</i> , var. <i>astringens</i> , M.	Brown Mallet.	" <i>refracta</i> , var. <i>velutina</i> , Meissn.	
" <i>Oldfieldii</i> , F. v. M. ...	Mallee.	<i>Grewia polygama</i> , Roxb.	
" <i>oleosa</i> , F. v. M. ...	Mallee.	<i>Guichenotia micrantha</i> , Benth.	
" <i>pachyloma</i> , Benth. ...	Mallee.	<i>Gunniopsis quadrifida</i> , Pax.	
" <i>papuana</i> , F. v. M. ...	Kimberley White Gum.	<i>Gymnanthera nitida</i> , R. Br.	
" <i>patens</i> , Benth. ...	Blackbutt.	<i>Gyrocarpus Jacquini</i> , Roxb. ...	Meeta, Yellow wood.
" <i>perfoliata</i> , R. Br. ...	Bloodwood.	<i>Gyrostemon ramulosus</i>	Cork tree.
" <i>platypus</i> , Hook. ...	Round Leaf Moort.	<i>Haemodorum flaviflorum</i> , W. F. Fitz.	Bloodroot.
" <i>Preissiana</i> , Schauer. ...	Mallee.	" <i>longifolium</i> , W. V. F.	"
" <i>ptychocarpa</i> , F. v. M.	Swamp Gum.	" <i>parviflorum</i> , Benth. ...	"
" <i>pyriformis</i> , Turcz.		<i>Hakea arborescens</i> , R. Br. ...	Beefwood.
" <i>pyrophora</i> , Benth. ...	Bloodwood.	" <i>crassifolia</i> , Meissn. ...	Wild Apricot.
" <i>redunca</i> , Endl. var. <i>oxymitra</i> , M.	Blue-leaved Mallet.	" <i>cristata</i> , R. Br.	
" <i>rostrata</i> , Schlect	River Gum.	" <i>cucullata</i> , R. Br.	
" <i>rudis</i> , Endl. ...	Flooded Gum.	" <i>cyclocarpa</i> , Lindl.	
" <i>salmonophloia</i> , F. V. M.	Bastard White Gum.	" <i>Lehmanniana</i> , Meissn.	
" <i>Sheathiana</i> , Maiden.	Salmon Gum.	" <i>macrocarpa</i> , A. Cunn. ...	Beefwood.
" <i>Spenceriana</i> , Maiden. ...	Grey Box.	" <i>marginata</i> , R. Br.	
" <i>Stowardi</i> , Maiden. ...	Mallee.	" <i>multilineata</i> , Meissn. forma <i>angustifolia</i> .	
" <i>terminalis</i> , F. v. M. ...	Ironbark.	" <i>ruscifolia</i> , Labill.	
" <i>tetradonta</i> , F. v. M. ...	Messmate.	<i>Halgania Preissiana</i> , Lehm.	
" <i>tetragona</i> , F. v. M. n. sp. ...	Merrit.	" <i>strigosa</i> , Schlecht.	
<i>Eugenia eucalyptoides</i> , F. v. M.		<i>Hardenbergia Comptoniana</i> , Bentham.	Sarsaparilla.
" <i>grandis</i> , Wight.		<i>Helichrysum apiculatum</i> , D. C.	
<i>Exocarpus aphylla</i> , R. Br.		" <i>leucopsidium</i> , D. C.	
" <i>latifolia</i> , R. Br. ...	Wild cherry.	" <i>obtusifolium</i> , F. v. M.	
		<i>Heliotropium ventricosum</i> , R. Br.	
		<i>Helipterum Fitzgibbonii</i> , F. v. M.	
		" <i>heteranthum</i> , Turcz.	
		" <i>roseum</i> , Benth.	
		<i>Hemiandra incana</i> , Bartl.	

APPENDIX 7—continued.

Botanical Name.	Local Name.	Botanical Name.	Local Name.
<i>Hemiarhena plantaginea</i> , Benth.		<i>Mesambrianthemum australe</i> Soland.	
<i>Hemigenia incana</i> , Benth.		<i>Mirbelia dilatata</i> , R. Br.	
<i>sericea</i> , Benth.		<i>Myoporum acuminatum</i> , R. Br.	
<i>Hibbertia gracilipes</i> , Benth.		<i>Myriocephalus Gueriniae</i> , F. v. M.	
<i>Hibiscus cannabinus</i> , Linn. ...	Ambari Hemp plant.	<i>Notholaena vellea</i> , R. Br.	
<i>Farrageri</i> , F. v. M. ...	Wild Hollyhock.	<i>Nuytsia floribunda</i> , R. Br. ...	Christmas bush.
<i>ficulneus</i> , Linn.		<i>Nymphaea stellata</i> , Willd. ...	Kimberley water lily.
<i>panduriformis</i> , Burm.		<i>Olearia Muelleri</i> , Benth.	
<i>pinonius</i> , Gaud.		<i>Opilia amentacea</i> , Roxb.	
<i>zonatus</i> , F. v. M. var.		<i>Osbeckia australiana</i> , Naudin.	
<i>spinosa</i> , W. V. Fitzg.		<i>Oxalis corniculata</i> , Linn.	
<i>Hypocalymma strictum</i> , Schauer.		<i>Oxylobium callistachys</i> , Benth. ...	W. A. Willow.
<i>Hypoestes</i> n. sp.		<i>capitatum</i> , Benth.	
<i>Indigofera hirsuta</i> , L. ...	Indigo plant.	<i>Pandanus aquaticus</i> , F. v. M. ...	River Pandanus.
<i>Ionidium epacroides</i> , Gardner. n.sp.		<i>odoratissimus</i> , Linn. ...	Screw palm.
<i>Ipomoea pes-caprae</i> , Roxb. ...	Native Yam.	<i>Panicum gracile</i> , R. Br.	
<i>Isopogon buxifolius</i> , R. Br.		<i>Passiflora foetida</i> , Linn.	
<i>divergens</i> , R. Br.		<i>Persoonia diadema</i> , F. v. M.	
<i>teretifolius</i> , R. Br.		<i>falcata</i> , R. Br. ...	Emu bush.
<i>Isotropis Drummondii</i> , Meissn. ...	Lamb poison.	<i>longifolia</i> , R. Br. ...	Swottie Bobs.
<i>Jacksonia argentea</i> , Gardner. n. sp.		<i>Saundersiana</i> , Kipp. ...	Wild cherry.
<i>eremodendron</i> , E. Pritzel.		<i>striata</i> , R. Br.	
<i>macrocalyx</i> , Meissn.		<i>Petalostigma quadriloculare</i> , F. v. M.	Quinine tree.
<i>thesioides</i> , A. Cunn.		<i>Petrophila ericifolia</i> , R. Br.	
<i>Keraudrenia hermanniifolia</i> , J. Gay		<i>propinquus</i> , R. Br.	
<i>Kochia pyramidata</i> , Benth.		<i>striata</i> , R. Br.	
<i>Kunzea Preissiana</i> , Schau.		<i>Phebalium filifolium</i> , Turcz.	
<i>Lambertia ericifolia</i> , R. Br.		<i>Pholidia breviflora</i> , Benth.	
<i>inermis</i> , R. Br. ...	Honeysuckle.	<i>Woolsiana</i> , F. v. M.	
<i>Lasiosepalum Barryanum</i> , F. v. M.		<i>Phragmites communis</i> , Trin.	
<i>Leptomeria spinosa</i> , D. C.		<i>Pileanthus peduncularis</i> , Endl.	
<i>Leptospermum spinosum</i> , Endl.		<i>Pimelea clavata</i> , Labill. ...	Banjine.
<i>Leschenaultia linarioides</i> , D. C.		<i>hispidula</i> , R. Br.	
<i>Leucopogon fimbriatus</i> , Stuehgl.		<i>suaveolens</i> , Meissn.	
<i>glabellus</i> , R. Br.		<i>sylvestris</i> , R. Br.	
<i>polymorphus</i> , Sond.		<i>Pittosporum phylliracoides</i> , D.C. ...	Cheesewood.
<i>propinquus</i> , R. Br.		<i>Platyzoma microphyllum</i> , R. Br.	
<i>verticillatus</i> , R. Br.		<i>Podocarpus Drouyniana</i> , F. v. M. ...	Wild grape.
<i>Lindsaea ensifolia</i> , Swartz.		<i>Podolepis aristata</i> , Benth.	
<i>Livistona inermis</i> , R. Br. ...	Cabbage Palm.	<i>Lessoni</i> , Benth.	
<i>Mariae</i> , F. v. M. ...	Fan Palm.	<i>Polycarpaea longiflora</i> , F. v. M.	
<i>Loranthus acacioides</i> A. Cunn. ...	Mistletoe.	<i>Polygonum barbatum</i> , Linn.	
<i>bifurcatus</i> , Benth.		<i>Prostanthera arenicola</i> , S. le M. Moore.	
<i>Exocarpi</i> , Behr.		<i>Baxteri</i> , A. Cunn.	
<i>ferruginiflorus</i> , W. V. Fitzg.		<i>Psoralea badocana</i> , Benth.	
<i>linearifolius</i> , Hook.		<i>virens</i> , W. V. Fitzg. ...	Kimberley Willow.
<i>linophyllus</i> , Fenzl.		<i>Ptilotus axillare</i> , F. v. M.	
<i>maritima</i> , Gardner, n. sp.		<i>declinatus</i> , Nees.	
<i>pendulus</i> , Sieb. var. am-		<i>exaltatus</i> , Nees.	
<i>plexifolius</i> , Benth.		<i>spatulatus</i> , Poir.	
<i>miraculosus</i> , Miq.		<i>striatum</i> , Moq.	
<i>Quandang</i> , Lindl.		<i>Pultenaea urodon</i> , Benth.	
<i>signatus</i> , F. v. M.		<i>Regelia inops</i> , Schau.	
<i>Lycopodium carolinianum</i> Linn.		<i>Rhizophora mucronata</i> , Lamarck. ...	Black Mangrove.
<i>Lygodium scandens</i> , Swartz.		<i>Rynchosia rhomboidea</i> , F. v. M. ...	Scented creeper.
<i>Lysinema conspicuum</i> , R. Br. ...	Rice flower.	<i>Salicornia bidens</i> , Benth. ...	Samphire.
<i>Maba humilis</i> , R. Br. ...	Ebony.	<i>Santalum lanceolatum</i> , R. Br. ...	Kimberley Sandal-wood.
<i>Mallophora globiflora</i> , Endl.		<i>Sarcocephalus cordatus</i> , Miquel. ...	Leichhardt Tree.
<i>Marianthus floribundus</i> , Putterl.		<i>Scaevola lanceolata</i> , Benth.	
<i>pictus</i> , Lindl.		<i>sericophylla</i> , F. v. M.	
<i>Marsilea Brownii</i> , A. Br.		<i>Scholtzia obovata</i> , Schau.	
<i>hirsuta</i> , R. Br.		<i>Senecio lautus</i> , Forst.	
<i>Melaleuca alsophila</i> , A. Cunn.		<i>Sesbania aucleata</i> , Pers.	
<i>argentea</i> , W. V. Fitz. ...	Silver Cadjuput.	<i>grandiflora</i> , Pers. ...	Cork Tree.
<i>coronicarpa</i> , Herbert. ...	Umbrella bush.	<i>Simsia tenuifolia</i> , R. Br.	
<i>eleutherostachya</i> , F. v. M.	Tamma.	<i>Sollya heterophylla</i> , Lindl. var. an-	
<i>exarata</i> , F. v. M.		<i>gustifolia</i> , Benth.	
<i>fulgens</i> , R. Br.		<i>Sonneratia alba</i> , Sm. ...	Mangrove.
<i>hamulosa</i> , Turcz.		<i>Sphaerolobium macrantha</i> , Meissn.	
<i>incana</i> , R. Br. ...	River Tea Tree.	<i>Spinifex longifolius</i> , R. Br.	
<i>lateriflora</i> , Benth.		<i>Stackhousia pubescens</i> , A. Rich.	
<i>laterita</i> , Otto.	River Tea Tree.	<i>Sterculia caudata</i> , Heward. ...	Kurrajong.
<i>leptospermoides</i> , Schau.		<i>ramiflora</i> , Benth. ...	Flame Tree.
<i>leucadendron</i> , Linn. ...	Cadjuput.	<i>viscidula</i> , W. V. Fitzg. ...	
<i>longicoma</i> , Benth.		<i>Stipa flavescens</i> , Labill.	
<i>pentagona</i> , Lab.		<i>Strychnos lucida</i> , R. Br. ...	Strychnine Tree.
<i>Preissiana</i> , Schau.		<i>Styliidium hirsutum</i> , R. Br. ...	Trigger Plant.
<i>striata</i> , Labill. ...	Coastal Tea Tree.	<i>reduplicatum</i> , R. Br.	
<i>thymoides</i> , Labill.		<i>violaceum</i> , R. Br.	
<i>uncinata</i> , R. Br.			
<i>Melochia pyramidata</i> , Linn.			

APPENDIX 7—continued.

Botanical Name.	Local Name.	Botanical Name.	Local Name.
<i>Tephrosea flammea</i> , F. v. M. var. <i>pilosa</i> , Gardner. n. var.		<i>Typha angustifolia</i> , Linn. ...	Bullrush.
<i>Terminalia bursarina</i> , F. v. M.		<i>Utricularia chrysantha</i> , R. Br.	
„ <i>circumalata</i> , F. v. M. ...	Ironwood.	<i>Verticordia Brownii</i> , D. C. ...	Cauliflower Bush.
„ <i>discolor</i> , F. v. M.		„ <i>Cunninghamii</i> , Schau. ...	Tree <i>Verticordia</i> .
„ <i>edulis</i> , F. v. M.		„ <i>Cunninghamii</i> , var. <i>longistyla</i> , Gardner. n. var.	
„ <i>grandiflora</i> , Benth. ...	Nutwood.	„ <i>densiflora</i> , Lindl.	
„ <i>platyphylla</i> , F. v. M. ...	Chestnut.	„ <i>Drummondii</i> , Schau.	
„ <i>volucris</i> , R. Brown.		„ <i>grandis</i> , Drummond.	
<i>Tetratea hirsuta</i> , Lindl.		„ <i>habrantha</i> , Schauer.	
„ <i>virgata</i> , Steetz.		„ <i>pennigera</i> , Endl.	
<i>Thespesia populnea</i> , Corr.		„ <i>Preissii</i> , Schauer.	
<i>Thomasia foliosa</i> , J. Gay.		„ <i>serrata</i> , (Lindl) Schau.	Morrison.
<i>Thryptomene stenocalyx</i> , F. v. M.		<i>Velleia trinervis</i> , Labill.	
„ <i>tuberculata</i> , E. Pritzel.		<i>Villarsia albiflora</i> F. v. M.	
<i>Thysanotus chrysantherus</i> , F. v. M.		<i>Vitis acetosa</i> , F. v. M. ...	Vine.
„ <i>dichotomus</i> , R. Br.		<i>Wahlenbergia gracilis</i> , D. C.	
<i>Tinospora smilacina</i> , Benth. ...	Native Ivy.	<i>Westringia descipulorum</i> , S. le M. Moore.	
<i>Trachymene effusa</i> , Benth.		<i>Wrightia saligna</i> , F. v. M. ...	Milk Bush.
„ <i>hemicarpa</i> , Benth.		<i>Wurmbea Drummondii</i> , Benth.	
„ <i>juncea</i> , Bunge.		<i>Xanthorrhoea nana</i> , Herbert.	Plain Blackboy.
<i>Tribulus hystrix</i> , R. Br.		„ <i>reflexa</i> , Herbert.	
<i>Trichinium calostachyum</i> , F. v. M.		<i>Xanthosia peltigera</i> , Benth.	
„ <i>corymbosum</i> , Gaud.		„ <i>rotundifolia</i> , D. C.	Southern Cross.
<i>Trichodesma zeylanicum</i> , R. Br.		<i>Xerotes Preissii</i> .	
<i>Triodia pungens</i> , R. Br. ...	Spinifex.	<i>Xylomelum angustifolium</i> , Kipp. ...	Sand Plain Pear.
<i>Tristania suaveolens</i> , Smith. ...	Fresh Water Mangrove.	„ <i>occidentale</i> , R. Br. ...	Native Pear.
<i>Trymalium Billardieri</i> , Fenzl. ...	Hazel.	<i>Xyris complanata</i> , R. Br. ...	Flowering Rush.

APPENDIX 8.

Trees raised at and distributed from Hamel State Nursery during the year ended 31st March, 1922.

Botanical Name.	Vernacular Name.	No. of Trees on hand 31st March, 1921.	No. of Trees raised year ended 31st March, 1922.	No. of Trees distributed, Season 1922.					No. of Trees on hand 31st March, 1922.
				Sold to Public.	Distributed Free.	Raised for Plantation and Arboreta.	Otherwise disposed of.	Total.	
Acacia acinacea	Governor Latrobe's Acacia ... ..	...	17	...	...	...	...	...	17
„ acolia ... ..	... ..	11	15	3	6	1	1	11	15
„ acuminata	Raspberry Jam	294	...	58	24	2	40	124	170
„ aspera	Rough-eafed Acacia ... ..	...	1	...	...	...	...	...	1
„ Baileyana	Cootamundra Wattle	876	715	767	24	2	83	876	715
„ buxifolia ... ..	... ..	2	30	...	...	2	...	2	30
„ cyanophylla	Bluish-leafed Acacia ... ..	...	11	...	...	...	...	...	11
„ cyclopis	Round-seeded Acacia ... ..	...	4	...	...	...	...	...	4
„ dealbata	Silver Wattle	426	489	416	...	2	8	426	489
„ decurrens	Green Wattle	210	615	197	...	2	11	210	615
„ elata	Cedar Wattle	236	301	209	...	2	25	236	301
„ Farnesiana	Sponge Tree ... ..	...	16	...	...	...	...	...	16
„ Howittii	Howitt's Wattle ... ..	...	34	...	...	...	...	...	34
„ juniperina	Prickly Wattle	57	...	35	12	2	8	57	...
„ leprosa	Seville Wattle	3	32	2	...	...	1	3	32
„ linearis	Narrow-leafed Acacia	5	...	...	...	...	...	...	5
„ longifolia	Long-leafed Golden Wattle	3	44	...	2	...	1	3	44
„ melanoxylon	Blackwood	233	991	127	...	96	10	233	991
„ montana	Mountain Acacia	4	14	1	2	...	1	4	14
„ myrtifolia	Myrtle-leafed Acacia	14	...	11	1	2	...	14	...
„ podalyriaefolia	Mt. Morgan Silver Wattle	194	533	127	48	2	17	194	533
„ prominens	Golden Rain Wattle ... ..	...	69	...	...	...	...	...	69
„ pycnantha	Golden Wattle	935	676	333	...	2	600	935	676
„ spectabilis	Mudgee Wattle	4	30	2	1	...	...	4	30
Agathis Australis	New Zealand Kauri Pine	6	...	...	...	3	...	3	...
Agonis flexuosa	W.A. Peppermint	1,160	1,277	919	120	102	19	1,160	1,277
Araucaria Bidwilli	Bunya Bunya	269	...	45	9	2	...	56	213
„ Cunninghami	Moreton Bay Pine	206	...	...	10	...	...	10	196
„ excelsa	Norfolk Island Pine	315	930	262	12	2	5	281	964
Bauhinia purpurea ... ..	... ..	...	18	...	...	...	...	...	18
Callitris robusta	Cypress Pine	397	312	262	2	2	15	291	418
Castanospermum Australe	Moreton Bay Chestnut	15	...	...	...	2	13	15	...
Ceretonia siliqua	Carob Bean	1,673	394	593	...	...	162	755	1,312
Cinnamomum camphora	Camphor Laurel	1,253	1,286	658	72	150	4	884	1,655
Cletha edulis ... ..	... ..	...	20	...	...	...	...	...	20
Cupressus Knighti	Knight's Cypress	318	626	162	...	156	...	318	626
„ lusitanica	Busaco Cedar	4,367	5,948	4,199	24	144	...	4,367	5,948
„ macrocarpa	Monterey Cypress	8,204	1,258	6,479	24	144	1,557	8,204	1,258
„ sempervirens	Mediterranean Cedar	1,713	1,439	1,317	96	144	26	1,583	1,569
„ torulosa	Nepal Cypress	621	...	168	...	...	5	173	448
Dracaena draco	Dragon's Blood Tree	26	...	...	...	...	...	...	26

APPENDIX 8—continued.

Trees raised at and distributed from Hamel State Nursery during the year ended 31st March, 1922—continued.

Botanical Name.	Vernacular Name.	No. of trees on hand March 31, 1921.	No. of trees raised year ended March 31, 1922.	No. of Trees Distributed, Season 1922.					No. of trees on hand 31st March, 1922.
				Sold to Public.	Distributed free.	Raised for Plantation and Arboreta.	Otherwise disposed of.	Total.	
<i>Erythrina indica</i>	Coral Tree	49	...	...	...	2	47	49	...
<i>Eucalyptus alba</i>	Ridge Gum	100	...	...	24	...	76	100	...
" <i>botryoides</i>	False Mahogany	937	838	663	60	150	4	877	898
" <i>citriodora</i>	Lemon Scented Gum	454	1,393	281	6	144	23	454	1,393
" <i>cladocalyx</i>	Sugar Gum	4,707	17,048	4,546	6	144	...	4,696	17,059
" <i>corymbosa</i>	Australian Bloodwood	...	406	...	...	...	...	...	406
" <i>diversicolor</i>	Karri	...	25	...	...	...	...	...	25
" <i>eugenioides</i>	White Stringy-bark tree	...	422	...	...	...	...	...	422
" <i>erythronema</i>	Lindsay Gum	...	17	...	...	...	...	...	17
" <i>ficifolia</i>	Crimson Flowering Gum	2,304	4,273	2,296	6	2	...	2,304	4,273
" <i>globulus</i>	Tasmanian Blue Gum	580	5,060	431	...	144	5	580	5,060
" <i>goniocalyx</i>	Mountain Spotted Gum	...	1,568	...	...	...	...	...	1,568
" <i>Gunnii</i>	Australian Cider Sap Gum	...	609	...	...	...	...	...	609
" <i>Guilfoylei</i>	Tingle Tingle	8	...	...	...	2	6	8	...
" <i>hæmastroma</i>	Brittle Gum	...	226	...	...	...	...	...	226
" <i>Lehmanni</i>	Lehmann's Gum	...	398	...	...	...	...	...	398
" <i>leucoxydon</i>	White Iron Bark Tree	...	600	...	...	...	...	...	600
" <i>longifolia</i>	Woolly Butt	...	602	...	...	...	...	...	602
" <i>macrocarpa</i>	Sand Plain Gum	290	272	241	36	...	8	285	277
" <i>maculata</i> var <i>citriodora</i>	Citron Scented Gum	...	600	...	...	...	...	...	600
" <i>macrorrhyncha</i>	Mountain Stringy Bark	...	394	...	...	...	...	...	394
" <i>meliiodora</i>	Yellow Box	227	252	78	...	144	5	227	252
" <i>microcorys</i>	Tallow Wood Gum	...	205	...	...	...	...	...	205
" <i>Muelleriana</i>	Yellow Stringy Bark Tree	...	417	...	...	...	...	...	417
" <i>obliqua</i>	Messmate	...	608	...	...	...	...	...	608
" <i>paniculata</i>	Grey Iron Bark	47	550	27	10	1	2	40	557
" <i>patens</i>	W.A. Blackbutt	10	...	...	5	...	3	10	...
" <i>pilularis</i>	E. Australia Blackbutt	9	1,050	...	6	2	1	9	1,050
" <i>pyriformis</i>	Pear-shaped Fruited Gum	...	4	...	...	...	...	...	4
" <i>regnans</i>	Giant Gum Tree	8	608	...	6	2	...	8	608
" <i>resinifera</i>	Kino Gum Tree	...	600	...	...	...	...	...	600
" <i>robusta</i>	Swamp Mahogany	...	675	...	...	...	...	...	675
" <i>rostrata</i>	Murray River Red Gum	606	606	...	...	...	...	...	606
" <i>saligna</i>	Willow Gum	...	600	...	...	...	...	...	600
" <i>Sieberiana</i>	Australian Mountain Ash	...	607	...	...	...	...	...	607
" <i>sideroxydon</i>	Black Iron Bark	...	607	...	...	...	...	...	607
" <i>tetraptera</i>	Broad-leaved Mallee	279	90	179	30	...	5	214	155
" <i>torquata</i>	Coolgardie Gum	...	17	...	...	...	...	...	17
" <i>viminalis</i>	Manna Gum	...	612	...	...	...	...	...	612
<i>Ficus australis</i>	Port Macquarie Fig	1,016	...	388	...	2	6	396	620
" <i>macrophylla</i>	Moreton Bay Fig	1,770	...	151	...	2	7	160	1,610
<i>Grevillea robusta</i>	Silky Oak	51	132	49	...	2	...	51	132

APPENDIX 9.

List of Trees planted in the Hamel State Nursery Arboretum.

Botanical Name.	Vernacular Name.	Native Habitat.
Acacia acinacea	...	Victoria and South Australia.
acola	...	...
acuminata	Raspberry Jam	Western Australia
aspera	...	New South Wales and Victoria
Baileyana	Cootamundra Wattle	New South Wales
cusifolia	...	...
cyanophylla	Black Wattle	Western Australia
cyclopis	Coastal Wattle	Western Australia
dealbata	Victorian Silver Wattle	South-Eastern Australia and Tasmania
decurrans	Sydney Green Wattle	New South Wales
elata	Cedar Wattle	New South Wales
Farnesiana Mimosa	...	Western Australia and Queensland
horvisti	...	...
juniperina	Prickly Wattle	Eastern Australia.
leprosa	...	Victoria and New South Wales
linearis	...	Western Australia
longifolia	...	Eastern Australia
melanoxyton	Blackwood	Victoria and Tasmania
microbotrya	Manna Wattle	Western Australia
montana	Mountain Wattle	South Australia and New South Wales
myrtifolia	Myrtle-leaved Acacia	South Australia
normalis	Normal Sydney Green Wattle	New South Wales and Queensland
podalyriaefolia	Mount Morgan Silver Wattle	Queensland
pruinosa	...	Eastern Australia.
pycnantha	Golden Wattle	Victoria and South Australia
saligna	Coastal or Weeping Wattle	Western Australia
spectabilis	Mudgee Wattle	New South Wales and Queensland
Agonis flexuosa	Peppermint	Western Australia
Araucaria Bidwilli	Bunya Bunya Pine	Queensland
Beilschmiedia Thomæa	...	West Indies
Callitris robusta	Cypress Pine	Australia
Castanospermum australe	Black Bean, Moreton Bay Chestnut	Queensland
Casuarina stricta	Drooping Sheoak	South-Eastern Australia
Ceratonia siliqua	Carob Bean	Mediterranean
Cinnamomum camphora	Camphor Laurel	China and Japan
Cupressus Benthami	Bentham's Cypress	Mexico
Knights	Knight's Cypress	United States of America
lusitanica	Busaco Cedar	Mexico
macrocarpa	Monterey Cypress	United States of America
sempervirens (horizontalis)	Mediterranean Cedar	Mediterranean
torulosa	Nepal Cypress	India
Erythrina indica	Coral Tree	New South Wales
Eucalyptus alba, Reinw.	Ridge Gum	Western Australia
bosistoiana	Gippsland Grey Box	South-Eastern Victoria
calycogona, Turcz.	Mallee	Western Australia
calycogona, Turcz. var. gracilis, colletioides, A. Cunn.	Snag and Rattle	Western Australia
Campaspe, S. le M. Moore	Gimlet Wood	Western Australia
citriodora	Lemon-scented Gum	Queensland
cladocalyx	Sugar Gum	South Australia and Victoria
clelandi, Maiden	Goldfields Blackbutt	Western Australia
coccifera	...	Tasmania
cornuta	Yate	Western Australia
corymbosa	Bloodwood	New South Wales and Queensland
erythronema	White Mallee	Western Australia
eugenioides	White Stringy Bark	New South Wales and Victoria
ficifolia	Red Flowering Gum	Western Australia
fœcunda, Schau.	Mallee	Western Australia
fœcunda, var. loxophleba (Benth.), Maiden	York Gum or Mallee	Western Australia
globulus	Blue Gum	Tasmania and Victoria
Gulfoylei	Tingle Tingle	Western Australia
gomphocephala	Tuart	Western Australia
goniocalyx	Grey Box	New South Wales
Gunnii	Cider Gum	Tasmania.
haemastoma	New South Wales White Gum	New South Wales
leucoxyton	White Ironbark	Victoria, South Australia, and New South Wales
Lehmanni	Bald Island Marluck	Western Australia
longifolia	Woolly Butt	Eastern Australia
macrocarpa	Sand Plain Gum	Western Australia
macrorrhyncha	Red Stringybark	New South Wales
maculata	Spotted Gum	New South Wales and Queensland
megacarpa	Western Australian Blue Gum	Western Australia
melliodora	Yellow Box	New South Wales and Victoria

APPENDIX 9—continued.—List of Trees planted in the Hamel State Nursery Arboretum.

Botanical Names.	Vernacular Names.	Native Habitat.
<i>Eucalyptus microcorys</i>	Tallow Wood	New South Wales
” <i>Muelleriana</i>	Stringybark	New South Wales and Victoria
” <i>obliqua</i>	Messmate	South-Eastern Australia and Tasmania
” <i>occidentalis</i>	Brown Mallet	Western Australia
” <i>oleosa</i> , F. v. M. var. <i>longicornis</i> , F. v. M.	Morrell	Western Australia
” <i>paniculata</i>	Red Iron Bark	New South Wales
” <i>patens</i>	Western Australia Black Butt	Western Australia
” <i>pilularis</i>	Victorian Blackbutt	Victoria
” <i>polyanthemos</i>	Red Box	South-Eastern Australia
” <i>Priessiana</i>	Yellow Flowering Stirling Range Mallee	Western Australia
” <i>pyriformis</i> (red)	Flowering Mallee	Western Australia
” (yellow)	Flowering Mallee	Western Australia
” <i>redunca</i>	Wandoo	Western Australia
” <i>redunca</i> , Schau. (Affin) var. <i>elata</i> , Benth.	White Gum or Wandoo	Western Australia
” <i>regnans</i>	Blackbutt and Mountain Ash	South-Eastern Australia
” <i>resinifera</i>	Red Mahogany	New South Wales and South Queensland
” <i>rostrata</i>	Southern Australian Redgum	Southern Australia
” <i>saligna</i>	New South Wales Flooded Gum	New South Wales and Victoria
” <i>salubris</i> , F. v. M.	Gimletwood	Western Australia
” <i>sideroxylon</i>	Red Iron bark	South-Eastern Australia
” <i>Sieberiana</i>	Mountain Ash	New South Wales
” <i>tereticornis</i>	False Mahogany	Eastern Australia
” <i>tetragona</i>	Kalgan Plains Mallee	Western Australia
” <i>tetraptera</i>	Broad-leaved Mallee	Western Australia
” <i>torquata</i>	Goldfields Red Flowering Gum	Western Australia
” <i>torquata</i> , Leuhm.	Goldfields Red Flowering Gum	Western Australia
” <i>viminalis</i>	Manna Gum	South-Eastern Australia
<i>Ficus australis</i>	Port Macquarie Fig	New South Wales and Queensland
” <i>macrophylla</i>	Moreton Bay Fig	New South Wales and Queensland
<i>Grevillea robusta</i>	Silky Oak	Queensland
<i>Hakea eucalyptoides</i>	Flowering Hakea	South-Eastern Australia
<i>Hakea laurina</i>	Emu Tree	Western Australia
<i>Jacaranda mimosifolia</i>	Palixander Tree	India
<i>Juniperus Bermudiana</i>	Pencil Cedar	Bermuda Island
” <i>cedrus</i>	Pencil Cedar	Canary Islands
<i>Lagunaria Patersoni</i>	Pyramid Tree	New Zealand
<i>Leucadendron argenteum</i>	Silver Tree	South Africa
<i>Pinus canariensis</i>	Canary Island Pine	Canary Islands
<i>Pittosperum eugenioides</i> ... ..	... ..	New Zealand
” <i>undulatum</i>	Victorian Native Laurel	South-Eastern Australia
<i>Prosopis juliflora</i>	Algaroba or Mesquite Tree	Western United States of America
<i>Sophora tetraptera</i> ... ..	... ..	New Zealand and Chili
<i>Sterculia acerifolia</i>	Flame Tree	Queensland
<i>Syncarpia laurifolia</i>	Turpentine Tree	Queensland and New South Wales
<i>Thuja occidentalis</i>	Arbor Vitæ	North America
” <i>orientalis</i>	Arbor Vitæ	China and Japan
<i>Tristania conferta</i>	Brush Box	New South Wales and Queensland

APPENDIX 10.

Summary of Prosecutions for year ended 30th June, 1922.

Nature of Offence.	Fine.	Remarks.
Unlawfully removing Forest Produce from State Forest No. 4 and on a Sawmill Permit, and not being registered in the prescribed form	£ s. d. 2 10 0	And costs.
Unlawfully felling undersized timber for hewing	2 10 0	And costs.
Unlawfully felling undersized timber for sawmilling	2 10 0	And costs.
Unlawfully cutting undersized timber on Timber Leases	10 0 0	And costs; also £400 damages.
Unlawfully omitting to brand stumps of trees felled	2 10 0	And costs.
Unlawfully cutting trees and undersized timber on a Timber Lease	5 0 0	And costs. Proportion of timber confiscated.
Unlawfully cutting trees and undersized timber on temporary reserve near Marrinup	5 0 0	And costs.
Unlawfully cutting young timber within a reserve	5 0 0	And costs.
Unlawfully cutting timber on a Timber Lease, not being a registered timber worker	2 10 0	And costs.
Unlawfully felling and hewing into sleepers a number of jarrah trees on a Permit Area	5 0 0	And costs. Sleepers confiscated.
Unlawfully omitting to brand stumps of fallen trees and using a counterfeit Crown brand on a Permit Area	2 10 0	And costs. Timber confiscated.
Unlawfully cutting forest produce on a Timber Lease not being a registered timber worker	2 10 0	And costs.
Unlawfully removing River Banksia timber from a Timber Lease	5 0 0	And costs.
Unlawfully hewing and removing sleepers from a Sawmill Permit	5 0 0	And costs; also £10 damages; 126 sleepers confiscated.
Unlawfully felling undersized trees and failing to brand stumps on a Permit Area	5 0 0	And costs.
Unlawfully lighting a fire on Crown land west side of Piesse's Gully	2 0 0	And costs. Prosecuted under "Bush Fires Act."
Unlawfully lighting a fire on own property and allowing same to spread on to Crown land	2 0 0	And costs. Prosecuted under the "Bush Fires Act."
Unlawfully lighting a fire on private property and allowing same to spread on Crown lands	1 0 0	And costs. Prosecuted under the "Bush Fires Act."
Unlawfully removing poles from a reserve	5 0 0	And costs. Poles confiscated.
Unlawfully felling tree under standard size on a Permit Area ...	5 0 0	And costs.
Unlawfully obtaining timber from a Sawmill Permit ... ..	...	Case dismissed.
Unlawfully cutting undersized timber on Permit Areas	10 0 0	And costs.
Unlawfully allowing employees to cut undersized timber on Permit Areas	5 0 0	And costs.
Unlawfully felling undersized trees on a Permit Area, and failing to brand stumps	5 0 0	And costs.
Unlawfully omitting to brand stumps of fallen trees, and using a counterfeit Crown brand on a Permit Area	...	Case dismissed on account of defendant's extreme youth.
Unlawfully wilfully setting fire to the bush on a Timber Lease ...	...	Case dismissed. No order as to costs.
Unlawfully failing to brand stumps ... ..	...	Case dismissed.

APPENDIX 11.

Notes on treatment of Marri Kino based on investigations carried out by Mr. H. Salt, M.Sc., A.I.C., under the Aegis of Forest Products Laboratory.

The tannins present in Marri kino bear a very strong resemblance to the tannins present in Quebracho (from the tree Quebracho colorado). This latter material deposits considerable quantities of phlobophenes from solution and treatment is necessary to make these matters soluble in cold water. Quebracho extract is treated with sulphites and bisulphites to solubilise the phlobophenes and also to reduce the reddish shade of the tannage.

Similarly by heating the kino from Eucalyptus calophylla with solutions of bisulphites or sulphites, the tannins are made readily soluble at ordinary temperatures. A clean kino is heated with 10 per cent. of sodium sulphite or sodium bisulphite and water, for 6 to 8 hours, and the resulting product is a clear solution of readily soluble tannins. The leather tanned with this treated kino compares very favourably with leather tanned with sulphited quebracho.

In the process of sulphiting the loss in tannins is nil. In some cases, where an excess of insoluble matter has been present, this has been brought into solution and actually

increased the tanning value. The extraction of the tannins is consequently almost perfect, showing a decided advantage over other methods of extraction. Actually, the kino is contained *on* the bark of the marri and *not* in the bark, which permits of direct sulphiting with a theoretical yield of tannin.

The original kino will only give a clear solution of at most 1 per cent. at the average temperature of a tanpit. Any greater concentration will give a precipitate. The treated kino can be retained for long periods in solutions of 10 per cent. and more, without any tanning matter being precipitated. In tanning processes where strong liquors must be used, it is obvious that the solubilised kino will be of service and the crude kino of very little use. This is the most valuable property of treated Marri kino.

In conclusion, it must be pointed out that the batteries of leaches found in tannin extract factories are not required in making an extract from Marri kino.

APPENDIX No. 12.

Tannin Survey of Western Australia.

A survey of the tanning possibilities of the State has been carried out by the Forest Products Laboratory of the Institute of Science and Industry (Director, Mr. G. H. Knibbs). The officer in charge of the Laboratory gives the following results of analyses carried out on material supplied and collected by the Forestry Department.

Table I. includes those barks not likely to be commercially useful and Table II. includes all the other barks which for one reason or another appear worthy of consideration.

Table I. is a list of materials on which only preliminary analyses were made. Elimination of materials not likely to be of immediate use was very difficult. The quantities

available and the cost of collection were the chief factors taken into consideration. However, all these results (Table I.) are of value in that they indicate approximately the tannin content of materials which do not at present appear economically valuable.

The galls caused by the Larva of *apia-morphia pomiformis* contained a pale tannin giving a blue colouration with ferric salts.

Oxylobium callistachys (willow) is somewhat rare and a full analysis was not carried out.

All analyses are of barks except where otherwise stated.

APPENDIX 13.

TABLE I.

Materials Analysed in Full.

Sample.	Common Name.	Locality and Month.	Tans.	Sol- uble. tans.	Insol- uble.	Mois- ture.	Colour.		Ash.	Chlor- ides.
							Red.	Yellow.		
Acacia acuminata* ...	Raspberry Wood Jam	Katanning, June ...	14.6	7.8	69.5	8.1	1.9	3.7	5.2	.4
Do. * ...	do. ...	Tambellup, June ...	9.5	5.5	76.8	8.2	...	...	5.5	.33
Do. (old tree)* ...	do. ...	Bendering, July ...	7.2	7.1	77.0	8.7	6.7	22.1	...	...
Do. (young tree)* ...	do. ...	Bendering, July ...	4.0	4.2	83.2	8.6	5.5	14.7	...	...
Acacia decurrens* ...	Green Wattle ...	Balingup, August ...	39.2	9.3	40.0	11.5	3.7	4.3	3.1	.16
Acacia microbotrya* ...	Badjong Black Wattle	Wagin, June ...	17.9	4.4	67.2	10.5	...	...	3.4	.07
Do. * ...	Manna Wattle ...	Cuballing, June ...	27.7	5.0	57.3	10.0	...	...	2.4	.26
Acacia salicina† ...	...	Kalgoorlie, September ...	6.9	11.3	72.0	9.8	...	...	...	...
Do. † ...	...	Kalgoorlie, July ...	7.4	17.9	65.8	8.9	1.9	8.7	...	...
Do. † ...	...	...	6.6	11.2	73.2	9.0	5.9	22.3	...	...
Banksia grandis* ...	Bull Banksia ...	Manjimup, March ...	6.6	4.0	76.1	13.3	...	...	...	...
Banksia verticillata* ...	River Banksia ...	Denmark, February ...	7.2	2.9	79.5	10.4	30.0	24.0	...	...
Callitris calcarata* (N.S.W.)	Cypress pine ...	...	17.1	7.4	67.1	8.4	...	...	...	...
Casuarina decussata* ...	Karri, Sheoak ...	Denmark, February ...	12.1	3.7	76.8	7.4	4.7	9.4	...	...
Casuarina Huegeliana* ...	Sheoak ...	Wagin, March ...	21.1	4.6	68.3	6.0	...	...	...	...
Ceriops Candolleana* ...	Red Mangrove ...	Vansittart Bay, August ...	41.4	7.3	39.9	11.4	...	...	...	...
Do. * ...	do. ...	Napier Broome Bay, August ...	40.2	6.6	42.1	11.1	...	...	...	...
Dryandra floribunda* ...	Prickly Banksia ...	Katanning, June ...	5.6	3.9	80.9	9.6	...	...	...	...
Eucalyptus accedens* ...	Powder Bark ...	...	18.6	9.8	54.8	16.8	4.8	8.1	5.3	.24
Do. * ...	Wandoo or Spotted Gum	Previous analyses ...	20.5	...	...	...	...	...	...	...
Eucalyptus alba* ...	Ridge Gum ...	Moola Bulla ...	31.7	11.3	47.6	9.4	6.8	23.0	6.9	.12
Do. * ...	do. ...	...	30.9	14.7	46.9	7.5	10.9	21.0	...	...
Do. * ...	do. ...	Previous analyses ...	32.2	...	...	...	...	...	...	...
Eucalyptus annulata* ...	...	Gnowangerup, March ...	19.1	10.9	62.2	7.8	9.5	18.4	...	...
Eucalyptus calycogona* ...	Snap and Rattle ...	Widgiemooltha, September ...	6.0	2.9	78.7	12.4	18.6	37.0	...	...
Eucalyptus cornuta* ...	Yate ...	Mount Barker, February ...	11.8	8.0	69.7	10.5	13.7	23.1	...	...
Eucalyptus diversicolor ...	Karri ...	Manjimup, March ...	16.3	6.5	65.1	12.1	...	...	10.1	.37
Do. * ...	do. ...	Jarrahwood, June ...	22.3	4.8	62.8	10.1	7.4	14.7	...	...
Do. * ...	do. ...	Jarrahwood, June ...	21.3	5.7	63.1	9.9	6.9	13.8	...	...
Do. * ...	do. ...	Denmark, February ...	11.2	5.0	74.9	8.9	8.6	19.4	...	...
Do. * ...	do. ...	Previous analyses ...	18.6	...	...	...	...	...	...	...
Eucalyptus erythronema* ...	White Mallee ...	Dowerin, August ...	30.4	12.1	49.3	8.2	7.5	20.0	13.2	.16
Eucalyptus falcata* ...	White or Silver Mallet	Wagin, June ...	32.3	6.8	47.4	13.5	10.6	17.7	6.4	.28
Eucalyptus incrassata* ...	Mallee ...	Coolgardie, October ...	10.1	6.7	70.0	13.2	...	...	6.2	.17
Eucalyptus longicornis* ...	Morrell ...	Gnowangerup, June ...	10.6	4.4	74.6	10.4	...	...	9.4	...
Do. * ...	do. ...	Previous analyses ...	8.7	...	...	...	...	...	...	...
Do. * ...	do. ...	do. do. ...	11.4	...	...	...	...	...	...	...
Do. * ...	do. ...	Wagin, March ...	14.6	7.3	60.1	8.0	...	...	...	...
Eucalyptus loxophleba* ...	York Gum ...	Wagin, June ...	5.7	4.5	82.0	7.8	...	...	...	...
Do. * ...	do. ...	Goomalling, August ...	10.6	6.8	73.2	9.4	...	...	13.5	...
Do. * ...	do. ...	Bendering, July ...	5.8	5.6	79.8	8.8	...	...	18.0	.13
Do. * ...	do. ...	Pingelly, October ...	7.0	6.8	75.6	10.6	...	...	...	...
Do. * ...	do. ...	Previous analyses ...	10.6	6.7	...	...	...	...	...	...
Eucalyptus occidentalis* ...	Swamp Yate, Black Mallet	Wagin, June ...	25.3	8.0	56.7	10.0	...	...	5.1	.17
Do. * ...	do. ...	Tambellup, June ...	23.0	9.4	57.1	10.5	...	...	5.8	.59
Do. * ...	do. ...	Previous analyses ...	21.6	...	...	...	...	...	...	...
Do. * ...	do. do. ...	do. do. ...	26.7	...	...	...	...	...	...	...
Do. * ...	do. ...	...	46.3	15.1	23.0	15.6	1.1	...	2.5	3.2
Eucalyptus occidentalis, var astringens† ...	...	...	...	...	...	...	...	...	...	...
Do. * ...	Mallet, Brown ...	Narrogin, June ...	40.0	10.4	38.5	11.1	...	...	5.8	.25
Do. * ...	Mallet, Red Mallet ...	Wagin, June ...	48.1	9.1	30.8	12.0	8.5	21.0	5.2	.43
Do. * ...	do. ...	Cuballing, June ...	44.4	8.1	35.9	11.6	7.5	25.0	3.4	.22
Do. * ...	do. ...	Arthur River, June ...	48.1	9.1	30.7	12.1	6.1	25.0	6.2	.56
Do. * ...	do. ...	Katanning, June ...	48.7	9.8	31.0	10.5	6.2	17.0	4.7	.29
Do. * ...	do. ...	Wagin, June ...	56.8	8.1	24.6	10.5	...	...	3.6	.37
Do. * ...	do. ...	Tambellup, June ...	52.9	9.9	25.4	11.8	6.1	17.0	6.7	.38
Do. * ...	do. ...	Gnowangerup, June ...	33.6	10.6	46.4	9.4	7.2	17.0	4.8	.33
Do. * ...	do. ...	Pingelly, October ...	48.5	10.9	26.1	14.5	5.1	8.5	2.4	.57
Do. * ...	do. ...	Wagin, March ...	41.4	15.4	33.8	9.4	...	...	...	...
Do. * ...	do. ...	Broomehill, March ...	46.0	13.6	27.3	13.1	5.2	11.0	...	...
(old tree)	do. ...	...	...	...	...	...	...	...	...	...
Do. * ...	do. ...	Broomehill, March ...	45.6	12.8	31.8	9.8	4.4	10.3	...	...
(young tree)	do. ...	...	...	...	...	...	...	...	...	...
Do. * ...	do. ...	Previous analyses ...	44.5	...	...	...	...	...	...	...
Do. * ...	do. do. ...	do. do. ...	39.0	...	...	...	...	...	...	...
Eucalyptus oleosa* ...	Mallee ...	Gnowangerup, March ...	12.3	8.2	69.5	10.0	6.2	8.1	...	...
Eucalyptus platypus (obcordata)* ...	Round leaf Moort	Gnowangerup, June ...	25.5	7.2	59.0	8.3	5.5	19.0	11.5	.22
Eucalyptus platypus* ...	do. ...	Gnowangerup, March ...	29.4	12.4	48.9	9.3	8.0	15.1	...	...
Do. * ...	do. ...	Previous analyses ...	29.7	...	...	...	...	...	...	...
Eucalyptus pyrophora* ...	Bloodwood ...	Kimberley, July ...	9.7	4.7	76.6	9.0	...	...	...	...

APPENDIX 13.

TABLE I—continued.

Materials Analysed in Full—continued.

Sample.	Common Name.	Locality and Month.	T'ans.	Sol- uble Non- tans.	Insol- uble.	Mois- ture.	Colour.		Ash.	Chlor- ide.
							Red.	Yellow		
<i>Eucalyptus</i> <i>redunca</i> var. <i>elata</i> *	Wandoo ...	Wagin, June ...	16.7	5.2	67.0	11.1	...	...	2.7	.11
Do. *	do. ...	Tambellup, June ...	20.8	7.8	61.8	9.6	17.0	28.0	4.6	.16
Do. *	do. ...	Mogumber, July ...	19.2	5.5	64.7	10.6	...	...	5.1	.19
Do. *	do. ...	Mundaring, July ...	20.2	7.8	62.4	9.6	...	...	4.8	.25
		Previous analyses	12.5	...	...	...	...	...	...	...
<i>Eucalyptus</i> <i>redunca</i> var. <i>oxymitra</i> *	Blue leaf Mallet	Wagin, June ...	29.6	7.7	49.5	13.2	...	...	3.5	...
Do. *	do. ...	Bendering, February ...	30.1	14.4	46.5	9.0	6.6	15.4	...	...
Do. *	do. ...	Bendering, July ...	22.5	10.3	57.6	9.6	8.3	20.5	...	...
<i>Eucalyptus</i> <i>rostrata</i> ...	River Gum (Kimberley), Blue Gum (Geraldton), Red Gum (Victoria)	Mingineew, January ...	16.6	3.5	66.3	13.6	...	...	6.5	.29
<i>Eucalyptus</i> <i>salmonophloia</i> *	Salmon Gum ...	Dumbleyung, June ...	11.9	5.5	72.3	10.3	14.0	36.0	4.2	.26
Do. *	do. ...	Wagin, June ...	13.1	5.1	72.2	9.6	...	...	5.3	.36
Do. *	do. ...	Nungarin, August ...	11.6	5.9	71.5	11.0	...	...	8.4	.60
Do. *	do. ...	Widgiemooltha, September ...	8.9	6.2	72.2	12.7	...	...	8.3	.44
Do. *	do. ...	Three Springs, January ...	8.4	4.8	72.9	13.9	...	...	...	...
Do. *	do. ...	Bendering, July ...	10.3	7.0	70.1	12.6	11.3	20.8	...	...
		Previous analyses	12.2	...	...	...	...	...	...	...
<i>Eucalyptus</i> <i>salubris</i> *	Gimlet ...	Dowerin, August ...	18.9	10.6	61.8	8.7	9.7	21.8	9.8	.15
Do. *	do. ...	Nungarin, August ...	16.1	8.4	65.2	10.3	...	...	10.2	.21
		Previous analyses	19.2	...	...	...	...	...	...	...
<i>Eucalyptus</i> <i>spathulata</i> *	Swamp Mallet ...	Dumbleyung, June ...	25.9	9.0	55.4	9.7	...	...	9.6	.23
		Previous analyses	28.5	...	...	...	...	...	...	...
<i>Eucalyptus</i> <i>torquata</i> *	Goldfields Flowering Gum	Widgiemooltha, September ...	17.6	6.8	65.7	9.9	12.5	22.0	8.2	.10
<i>Eucalyptus</i> <i>transcontinentalis</i> *	...	Coolgardie, October ...	10.0	3.3	75.2	11.5	...	...	...	...
<i>Eucalyptus</i> <i>flocktonia</i> *	Merritt ...	Bendering, February ...	18.5	13.7	57.9	9.9	12.2	16.7	...	...
<i>Grevillea</i> <i>chrysodendron</i> *	Honey Tree ...	Kimberley, July ...	10.9	3.4	75.3	10.4	...	...	...	...
<i>Hakea</i> <i>glabella</i> *	Prickly Pear ...	Katanning, June ...	18.4	6.0	63.3	12.3	...	...	2.5	.12
Do. *	do. ...	Wagin, March ...	20.4	16.7	50.3	12.6	5.9	10.5	...	...
<i>Jacksonia</i> <i>Sternbergiana</i> *	Stinkwood ...	Tambellup, June ...	5.0	2.3	81.8	10.9	14.3	32.3	...	...
<i>Oxylobium</i> <i>callistachys</i> *	W.A. Willow ...	Denmark, February ...	11.1	8.1	70.6	10.2	7.3	18.9	...	...
|| <i>Persoonia</i> <i>longifolia</i> *	Emu Bush Snotty Bob	Picton, February ...	13.7	7.5	70.8	8.0	...	...	...	...
<i>Terminalia</i> <i>platyphylla</i> *	Myrabolam ...	Kimberley, September ...	10.0	5.6	...	...	...	...	...	...
Do. § (fruits)	...	Kimberley, September ...	8.6	10.0	...	...	...	...	...	...
<i>Tristania</i> <i>suaveolens</i> *	Freshwater Mangrove	Kimberley, July ...	4.2	5.9	82.2	7.7	15.5	27.0	...	...

*Bark.

† Leaves and Twigs.

‡Kino.

§ Fruits.

|| *Persoonia longifolia* gives a purplish extract.

APPENDIX 13.

TABLE II.

List of Materials on which only preliminary Analyses were made.

Sample.	Common Name.	Locality and Month of Collection.	Analyses.		Remarks.
			Tans.	Non-tans.	
Acacia aneura	Pine Mulga	Laverton, September	4.0	2.6	
Acacia subcærulea, var subsæssilic		Coolgardie, October	3.6	13.5	
Acacia aneura		Laverton, September	6.6	6.7	Leaves and Twigs.
Acacia aneura	Mulga	Laverton, September	3.4	8.9	
Acacia salicina		Kalgoorlie, September	3.9	16.5	Leaves and Twigs.
Acacia		Coolgardie, July	8.6	14.0	Leaves and Twigs.
		Coolgardie, July	3.4	11.4	Extracted at 50° C.
		Coolgardie, November	6.5	12.7	Extracted at 100° C.
		Previous analyses	8.5	18.5	
			5.3	11.2	
Adansonia Gregorii	Baobab Bottle Tree	Derby, October	7.4	...	
*Agonis flexuosa	Peppermint	Ludlow, July	0.51	...	Ex North-West.
*Agonis flexuosa (wood)	Peppermint	Seasoned timber	12.8	5.2	
Banksia grandis	Bull Banksia	Manjimup, March	5.4	1.3	
		Lion Mill, December	7.4	3.3	
		Denmark, February	4.8	...	
Banksia littoralis	Swamp Banksia	Manjimup, March	5.4	2.6	
Banksia sp.			0.9	2.1	
Banksia verticillata (wood)			15.6	4.3	Not identified.
		Denmark, February	9.2	3.2	
		Seasoned timber	0.3	1.5	
Bruguiera gymnorrhiza	Black Mangrove	Napier Broome Bay, July	36.2	10.1	On dry bark.
		Previous analyses	44.0	...	
Cassia artemisioides		Laverton, September	13.6	11.8	
		Previous analyses	12.4	...	
Casuarina Huegeliana	Sheoak	Bendering, July	11.1	2.7	
		Wagin, March	13.0	3.2	
Ceriops Candolleana	Red Mangrove	Vansittart Bay, August	30.3	8.1	
		Napier Broome Bay, Sept.	37.1	11.4	
		Previous analyses	44.0	...	
Dodonaea adenophora	Goldfields Hop	Coolgardie, July	5.8	17.4	On dry bark.
			5.8	17.3	Leaves and Twigs.
Dodonaea lobulata	Goldfields Hop	Kalgoorlie, September	8.0	20.3	Leaves and Twigs.
		Kalgoorlie, September	4.3	12.2	Leaves and Fruit.
		Coolgardie October	3.4	10.4	Twigs and Stems.
		Coolgardie, July	3.0	20.0	Leaves and Twigs.
		Previous analyses	11.0	...	On dry material.
Dryandra floribunda	Prickly Banksia	Katanning June	5.5	4.2	
Eucalyptus calycogona	Snap and Rattle		6.4	4.1	
Eucalyptus calophylla	Marri	Previous analyses	8.0	...	
		Mundaring, July	0.8	3.1	
		Mogumber, July	4.0	6.2	
		Previous analyses	3.0	...	
Eucalyptus diversicolor (wood)	Karri	Seasoned wood	1.1	0.6	
Eucalyptus gomphocephala	Tuart	Ludlow, July	2.7	9.7	
Eucalyptus Griffithsii	Goldfields Grey Gum	Widgiemooltha, October	5.8	7.9	
		Previous analyses	7.4	...	
Eucalyptus Guilfoylei	Yellow Tingle-tingle	Denmark, February	10.2	5.6	
Eucalyptus Jacksoni	Red Tingle-tingle	Normalup, February	2.8	1.5	
Eucalyptus marginata	Jarra	Mundaring, July	4.3	2.3	
		Previous analyses	4.2	...	
Eucalyptus megacarpa	Bullich Blue Gum	Denmark, February	10.6	7.7	
Eucalyptus megacarpa (wood)	Bullich Blue Gum	Denmark, February	9.6	2.0	
Eucalyptus miniata	Woollybutt	Kimberley, July	6.4	7.5	Ex North-West.
Eucalyptus occidentalis (wood)		Wagin, June	0.7	0.9	
Eucalyptus papuana	White Gum	Kimberley, October	6.4	4.5	Ex North-West.
Eucalyptus patens	Blackbutt	Manjimup, March	4.2	2.8	
		Denmark, February	4.8	3.3	
		Previous analyses	9.3	...	
Eucalyptus pyrophora	Bloodwood	Kimberley, July	9.1	5.1	Ex North-West.
Eucalyptus rudis		Northam, November	7.0	10.1	
Eucalyptus rudis	Flooded or Swamp Gum	Wagin, June	1.6	4.8	
Eucalyptus salmonophloia	Salmon Gum	Dumbleyung, June	1.5	2.2	Wood.
Eucalyptus papuana	Desert Gum	Kimberley, July	6.7	7.3	Ex North West.
Eucalyptus spenceriana	Greybox	Kimberley, July	8.0	9.0	Ex North-West.
Eucalyptus microtheca	Coolibah	Kimberley, October	7.1	6.1	Ex North West.
Eucalyptus tetradonta	Messmate or Stringybark	Kimberley, July	4.3	10.9	Ex North-West.
Eucalyptus terminalis	Ironbark	Kimberley, July	2.7	3.9	Ex North-West.
Eucalyptus transcontinentalis		Coolgardie, October	10.9	3.8	
Grevillea chrysodendron	Honey Tree	Kimberley, July	10.7	3.4	Ex North-West.
Grevillea eriostachya		Wyalcatchem, August	3.6	9.3	Leaves and Twigs
Grevillea heliosperma		Kimberley, July	12.4	7.8	
Gyrocarpus Jacquinii	Meta	Derby, October	0.1	...	Ex North-West.
Hakea multilineata		Coolgardie, October	2.9	12.3	Leaves and Twigs.
			3.8	4.7	
Hakea lissocarpha	Needle Bush	Katanning, June	1.8	6.3	
Halgania lavandulacea	Blue Bush	Kalgoorlie, July	4.1	15.7	Leaves and Twigs extracted at 50°C.)
			8.7	17.6	Leaves and Twigs. extracted at 100°C.
Jacksoni stembergiana	Stinkwood	Tambellup, June	6.1	3.1	
Petalostigma quadriloculare	Quinine Tree	Kimberley, August	6.6	6.5	Ex North-West.
Santalum cygnorum	Sandalwood	Pingelly, October	2.1	3.7	Nuts.
Sonneratia alba	A mangrove	Kimberley, August	8.0	9.0	Ex North-West.
Teranalia platyphylla	Chestnut	Kimberley, October	9.9	6.7	Ex North-West.

* Colour—(Bark) 24.5 Red. 53 Yellow.

(Wood) 17.0 " 30 "

Table II. includes all the materials fully analysed, as well as certain others which it was deemed advisable to investigate, e.g., *Tristania suaveolens*. The figures for the ash of the eucalypts are high; the figures for soluble chlorides do not increase in proportion to the ash. All chloride figures are calculated as sodium chloride (NaCl).