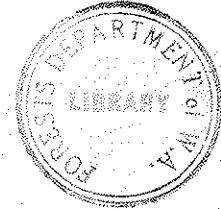


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WESTERN AUSTRALIA
1955

REPORT

on the operations of

THE FORESTS DEPARTMENT

for the

YEAR ENDED 30th JUNE, 1955

by

A. C. HARRIS, B.Sc. (Adel.)
CONSERVATOR OF FORESTS

PERTH:

By Authority: William H. Wyatt, Government Printer
1955

Forests Department,

Perth, 17th October, 1955.

To the Honourable Minister for Forests.

Sir,

I have the honour to transmit herewith my report on the operations of the Department for the year ended 30th June, 1955.

Yours faithfully,

A. C. Harris.

Conservator of Forests.

Annual Report of the Operations of the Forests Department for the Year ended 30th June, 1955.

1. INTRODUCTION AND SUMMARY.

Sawn and hewn timber production for the year under review, 1954-55, at 18,920,528 cubic feet, exceeded that of any previous year since 1926, being 3 per cent. higher than last year. Of this total, 15,443,279 cubic feet were held in the State and 3,477,249 cubic feet were exported, of which about 16 per cent was sent overseas. The total exports represented 18.3 per cent. as compared with 21 per cent. last year.

The total value of sawn timber this year was estimated at £9,710,278, and the gross Departmental revenue reached a peak of £804,755. Forest products other than sawn timber, were estimated at a value of over £2,000,000.

The following table illustrates the recent trends in production and consumption :—

Year.	Production.			Total Export.	Local Consumption.	Sawmills.	Monthly Average of Men Employed.
	Sawn.	Hewn.	Total.				
	cub. ft.	cub. ft.	cub. ft.	cub. ft.	cub. ft.	No.	No.
1925-26	14,522,733	6,277,952	20,800,685	12,001,384	8,799,301	.....	.....
1937-38	11,720,642	2,573,540	14,294,192	7,545,744	6,748,448	134	3,112
1945-46	8,869,847	14,041	8,883,888	3,373,025	5,510,863	128	2,876
1950-51	12,571,635	1,183	12,572,818	2,342,492	10,230,326	256	4,047
1951-52	14,717,112	.....	14,717,112	2,373,553	12,343,559	280	4,708
1952-53	16,973,332	1,761	16,975,093	3,965,188	13,009,905	306	5,395
1953-54	18,343,974	1,454	18,345,428	3,858,956	14,486,472	299	5,724
1954-55	18,915,967	4,561	18,920,528	3,477,249	15,443,279	279	5,811

This record production of approximately 19 million cubic feet of timber in the square represents 52,663,087 cubic feet in the round, or 1,053,260 loads of standing timber, but of this total, 80,196 loads were of pine and species other than Jarrah and Karri.

Of the total 1.05 million loads, only 749,353 loads came from State Forest and Crown Lands, which is still a little below the permissible cut prescribed to date, and as discussed hereunder a more optimistic view may now be taken of the capacity of State Forest to produce in perpetuity.

This view is encouraged by the following important facts :—

- Nearly 400,000 acres have been added during the past year to the area previously dedicated as State Forest.
- Suitable pine planting areas have now been located which will allow of a programme for the fast-growing *Pinus radiata* to supplement indigenous species to the order of possibly 250,000 loads per annum by 1985.
- Extensive assessment during the year indicates that there is a greater forest capital in the far south than had previously been thought.
- There are possibly a further 400,000 acres of forest lands still worthy of dedication.

At the date of writing this report it is not possible to state a definite figure for the permissible cut, but a revised General Working Plan allowing for some increase of the total cut will be drawn up within the next twelve months.

Over a great many years attention has been drawn by successive Conservators to the limitations of our State Forests to provide for the needs of more than a million people and particularly after the timber on private property is cut out. However, if the State is willing to provide adequate finance for fast-growing pine plantations, this picture can be changed. Working plans for the indigenous forest should take this factor into account and assume that reasonable amounts of Loan or other money will become available annually.

In last year's report, a temporary lull in the tempo of pine planting was announced, while the economics of planting on land then available for pines was examined. During the past year a drive has been made on soil survey with specialised officers to locate land suitable for the fast-growing *Pinus radiata*, and this has resulted in sufficient areas being in sight for at least a 10,000-acre programme on good pine soils. Although such soils are of limited extent within State Forest, it has been possible to repurchase areas in the Kirup and Nannup districts which can be expected to produce a first class forest of pine at a high rate of growth. The emphasis of plantation policy will be on planting the maximum of *Pinus radiata* in order to have supplies of softwood coming forward at the earliest possible date, but it must be noted that, due to the shortage of Loan moneys, financing of the pine programme has had to be supplemented this year by money from Reforestation Fund, which should more correctly be used for the development and protection of the indigenous forest.

Fire control policy has undergone considerable revision during the past two summers. Extensive prescribed controlled burning over half-a-million acres has safely reduced hazards which had built up over many years. Most of this work is done at night, or under cool, cloudy conditions by day in early spring, late autumn, or even during fine weather in winter. The losses from serious summer fires have been considerably reduced, and the staff generally now feel more confident of their ability to cope with the fire control problem which had become acute after years of attempted complete protection.

Special experienced officers have been used to inaugurate and teach the technique of control burning which had, due to the long period of the policy of complete protection (1942-53), tended to become lost as the older officers with pre-War experience were replaced by a younger generation.

As a result of a Cabinet decision during 1954, arrangements have been made for the refund of a percentage of royalty, provided that sufficient improvements had been made, to owners of land on which timber was reserved to the Crown, and the Department is administering these refunds with a consequent loss of revenue. Ninety-two thousand eight hundred and sixty loads were cut during the year on land within this category, and refunds from revenue totalled £14,546.

Royalties for many years have remained unchanged except for minor increases in the base rate to all sawmillers, irrespective of their key markets, and the much overdue revision of royalties as recommended by the Royal Commission of 1951 was made possible by amendments to the Forests Act this year. The royalty revisions were completed during the latter part of the financial year, with a consequent expectation of increased revenue for next year.

The gross revenue of the Department reached an all-time peak at £804,755, brought about chiefly by increased timber output and some increases in log royalties, which will have a greater effect on next year's revenue, and in spite of some diminished returns due to cessation of the use of firewood for Mundaring Weir pumping stations. Direct conversion by Departmental labour of parcels of Jarrah logs within 50 miles of the Metropolitan area has resulted in high prices being obtained, and these have served as a guide to royalty revision.

Surveys based on air photo interpretation of forest areas reached a record of 900,000 acres during the year and field assessment for the collateral data exceeded this figure, mainly on account of the difficulty experienced by the State Mapping organisation in keeping up the supply of air photos, due to unsuitable conditions for air photography.

The vital importance of air photos and air observation to forestry has been demonstrated by the results obtained over the past two years.

Reforestation of the indigenous forest continued to be kept up to date and 24,500 acres of maiden bush in State Forest which was cut over during the year under tree-marking control received top disposal treatment. In addition, a further 16,000 acres of old cutting were treated. The thinning of indigenous forest, although sylviculturally desirable, cannot at present be practised economically except on a small scale due to the lack of a market for small poles.

The Department, with its many Headquarters and Outstations covering four million acres and extending over 250 miles south from Perth, has the problem of keeping mobile a fleet of 339 automotive units, valued at £250,000, and stationary plant valued at £150,000.

The road-making activities of the Department are second only to those of the Main Roads Department, from whom substantial assistance is obtained.

It was evident that the Forests Department could not cope with its maintenance problems without an extension of workshop facilities in the forest regions.

Over the years a system of minor district garages and workshops had been developed, but over the past 12 months these have been expanded and a Plant and Maintenance Engineer has been appointed to co-ordinate this important part of the Department's activities.

Results have been satisfactory and a system of repairs and maintenance has been inaugurated through the following channels :—

- (a) General store at Victoria Park (Collier Plantation).
- (b) District Maintenance Garages which do servicing only.
- (c) Class " A " Garages, which can do minor repairs.
- (d) Divisional Garages, which can do simple overhauls.
- (e) Regional Workshops, which are now equipped for work of a major nature. Equipment provision for each type of workshop has been standardised.

During the year reticulated water supply schemes were installed at three forest villages, and at four centres electric light facilities were established.

Pine planting, following a stocktaking of the existing 20,000 acres and policy revisions, was carried out to the limit of funds available. During the year 963 acres were planted and the foundations laid for a rapidly expanding programme when funds become available.

The total net area of pine plantation is now 20,403 acres, of which about one-third must be regarded as experimental. In the early plantations many difficult problems were faced and overcome, and as a result, current programmes can be confidently expected to succeed.

In the field of research, particular attention has been paid during the year to plantation soil problems where a great deal is at stake if money is invested in the wrong soils and species. Work on the effect of controlled fire on forests and soils, and a number of problems in the indigenous forest, has been continued.

The Department continues to be represented by the Conservator or his Deputies on a number of Commonwealth Boards or Committees, and in this State takes an active part in numerous Committees, the more important of which deal with Timber Utilisation, Land Utilisation, Road and Rail Transport, Water Purity, Flora and Fauna, Rural Fires Prevention, Soil Conservation, State Gardens and State Mapping. The Conservator also is a member of the Board of Management of the Charcoal-Iron Industry (Wundowie) of which he was formerly General Manager.

Associated with the various projects discussed above, some of the major works covered during the year were :—

- 632 miles of new roads and tracks.
- 86 miles of new telephone line.
- 35 new houses.
- 4 new offices and a number of sundry buildings.
- 40 new automotive units which replaced 23 worn out units and added to the total of working units.

2. REVISION OF THE FORESTS ACT (1918).

The original Forests Act (1918) is a fine piece of legislation for which the Conservator of that time, Mr. C. E. Lane-Poole, was responsible.

In the period of 36 years, since the Forests Act was passed, there had been virtually no changes made in it, but the need had been felt in recent years for certain amendments to bring the Act into line with changed conditions.

During the 1954 Parliamentary Session a Bill was passed with the strong support from both sides of the House and the approbation of the Timber Industry.

The principal changes provided that :—

- (a) No person should be appointed as Conservator of Forests unless he holds approved professional forestry qualifications.
- (b) Wider and more elastic powers were to be granted to the Conservator regarding the conditions under which permits could be renewed, and royalties re-determined ; also for the issue of licenses, and the fixing of conditions and royalties applying thereto.
- (c) Nine-tenths of the Department's net revenue should be paid to the Reforestation Fund, instead of three-fifths as provided in the original Act.

3. REVENUE AND EXPENDITURE.

Revenue.

The gross revenue of the Department for the year ended 30th June, 1955, amounted to a record figure of £804,755. The previous highest revenue received in any one year was in 1953-54 when it amounted to £777,518.

The following tabulation shows a comparison of the two years :—

	Year ended 30th June, 1954.	Year ended 30th June, 1955.
	£	£
Royalties	493,473	508,826
Rents	2,166	2,124
Sandalwood	54,541	52,752
Departmental	227,338	241,053
	<u>£777,518</u>	<u>£804,755</u>

The major collections under the heading of " Departmental " were :—

	£
Sale of Pine Logs and Pine Timber	103,206
Hardwood Conversion Sales	98,596
Details appear in Appendix IA.	

Expenditure.

The total expenditure charged against Consolidated Revenue Fund amounted to £263,974. This amount was expended as follows :—

	£
General Administration of the Forests Act and Regulations, including refunds of Royalty to settlers (£14,546)	124,211
Administration of the Timber Industry Regulations Act	3,073
Direct Conversion of Pine	56,010
Direct Conversion of Hardwood	49,232
Recoupable Projects	31,448
	<u>£263,974</u>

Details appear in Appendix IA.

APPORTIONMENT OF NET REVENUE OF DEPARTMENT.

	£	s. d.	£	s. d.
Gross Revenue for year, 1954-55			804,754	12 4
Less Revenue from Recoupable Projects (nine months only)			25,023	3 0
			<u>779,731</u>	<u>9 4</u>
Consolidated Revenue Fund Expenditure and direct charges by Treasury	266,188	17 11		
Less Expenditure on Recoupable Projects (12 months)	31,447	19 10		
	<u>234,740</u>	<u>18 1</u>		
Less Timber Industry Regulations Salaries and Incidentals	3,073	2 5		
			<u>231,667</u>	<u>15 8</u>
Net Revenue			<u>£548,063</u>	<u>13 8</u>
Three-fifths of Net Revenue credited to Reforestation Fund during the year 1954-55			<u>£328,838</u>	<u>4 2</u>

FORESTS IMPROVEMENT AND REFORESTATION FUND.

	£	s. d.	£	s. d.
Balance—1st July, 1954			10,834	7 11
Three-fifths Net Revenue			328,838	4 2
Treasury Grant			159,000	0 0
Federal Aid Road Grant			60,488	3 2
Direct Credits			5,309	8 6
			<hr/>	
			564,470	3 9
<i>Less Expenditure—</i>				
General Account	503,737	10 8		
Federal Aid Road Grant	60,488	3 2		
			<hr/>	
			564,225	13 10
			<hr/>	
Balance as at 30th June, 1955			£244	9 11

Details appear in Appendix IB.

LOAN FUNDS EXPENDITURE.

	£	s. d.
Plantations	101,361	5 5
Purchase of Land	1,600	0 0
Administration	5,103	5 3
	<hr/>	
Total	£108,064	10 8

Details appear in Appendix IC.

GROSS EXPENDITURE.

The total expenditure of the Department charged against all Funds was as follows :—

	£
Consolidated Revenue Fund	263,974
Reforestation Fund, including Federal Aid Roads Grant	564,226
General Loan Fund	108,065
Mining Leases Royalty Fund	420
	<hr/>
	£936,685

4. THE FOREST AREA.

State Land Utilisation Committee.

In order to ensure that careful consideration was given to the allocation of remaining Crown Lands in the South-West to best use, a Committee was set up comprising the following :—

Surveyor-General (Chairman).
 Director of Agriculture.
 Conservator of Forests.
 Hydraulic Engineer.
 Soil Conservation Commissioner.
 Treasury Economics Officer.

This body studies the evidence submitted supporting the various claims of agriculture, forestry, and water supply with regard to the proper use of existing Crown Lands not at present dedicated for specific purposes, and makes recommendations to the Minister for Lands. As a result the policy covering land use is on the most satisfactory basis as it has ever been.

State Forest (Forests Act, 1918–1954).

The area of State Forest as at 30th June, 1955, was 3,834,207 acres, an increase of 371,968 acres as compared with the acreage for the previous year. This addition was mainly due to an area in the Shannon River-Walpole area which was considered by the State Land Utilisation Committee to be more suitable for long-term forestry than for other forms of land use.

In the South-West zone, in addition to State Forest, there are now 124,451 acres of Timber Reserves under the Forests Act, which have the status of permanent reservation and should be State Forest. In addition, there are approximately 200,000 acres of Timber Reserves under the Land Act which need examination with a view to placing them under more permanent status where the timber so warrants.

The Forests Department has recommended the dedication of an additional 48,000 acres East of the Frankland River. This recommendation is expected to be carried out in the coming year, together with further areas which are in the course of assessment at North Chittering, North Yanchep (for pine planting), Greenbushes and South of the Blackwood River. All such projects now have careful consideration by the Land Utilisation Committee on which all the major Departments interested in land use are represented and the functioning of this Committee ensures that highly qualified recommendations reach the Government.

Timber Reserves (Forests Act, 1918-1954).

The total area of timber reserves under the Forests Act as at 30th June, 1955, was 1,831,870 acres, an increase of 367 acres as compared with the acreage for the previous year. Of this total area of timber reserves, only 124,451 acres are in the South-West and capable of producing milling timber. The balance is chiefly firewood forest of the inland areas.

The 124,451 acres in the South-West may be subdivided as follows :—

	acres.
Jarrah	39,809
Wandoo	9,509
Pine areas	74,485
Mallet areas	648
	124,451

5. APPLICATIONS FOR LAND.

During the year the Department received either through the Lands Department or direct, 212 applications covering a total area of 276,673 acres, of which applications for pastoral or grazing leases in the inland areas totalled 176,040 acres.

Of these applications, 105 covering a total area of 71,455 acres were referred to the Forest Officer-in-Charge of the District concerned for either a detailed inspection or for additional information. In some cases field work was greatly reduced by the use of air photos. Of the area applied for the Forests Department agreed to the release of 65 blocks not required for forestry purposes, totalling approximately 24,939 acres.

6. SAWMILLING, HEWING AND TIMBER INSPECTION.

Production of sawn and hewn timber constituted a new record figure of 18,920,528 cubic feet, of which 5,461,391 cubic feet were from Private Property. The increase was due primarily to the stepping up of production from Private Property.

The production from Private Property approximately equalled the total exports, indicating that local consumption was the equivalent of the output from Crown Lands.

Approximately 749,000 loads of logs in the round, equalling last year's cut, were cut on Crown Lands, including 92,860 loads from Private Property with timber reserved to the Crown, which represents slightly more than one load per capita.

The loss by fire of one small and two large sawmills reduced production seriously.

A further increase in the area of State Forest and in the areas devoted to pine growing is essential if the forests are to meet the long-term demands of a rapidly increasing population, and particularly if Western Australia is to continue to export to the Eastern States. South Australia is deficient in durable hardwoods and some obligation to assist that State and the Commonwealth Railways is recognised. This subject is discussed more fully elsewhere.

Details of the production of mill logs and sawn timber are given in the accompanying tables, and a table of annual log production is given in Appendix 2E.

Twenty-eight new mills were registered during the year and 31 ceased to operate, thus reducing the total to 296 as at December, 1954, of which 159 were on Crown Lands and 137 on Private Property.

In the Report of the Royal Commissioner, 1952, an analysis was made of production which showed that in this State "the 51 mills with an intake capacity of 7,000 loads and over per annum represented 80 per cent. of the total intake capacity per annum and they produced 86 per cent. of the total production."

It is evident from such figures that the total number of sawmills is not of prime importance to the total timber production of the State.

Departmental plantations yielded 18,916 loads of pine thinnings (19 per cent. increase), of which 323 loads were used for plywood manufacture. Other species, Jarrah and Karri, provided 72,087 cubic feet (1,441 loads), for plywood, nearly all of which was from State Forest.

The Forests Department continues to provide an expert inspection service for buyers of Western Australian timber.

Sawn sleepers inspected during the year under review amounted to 2,714,023 cubic feet, of which 902,741 cubic feet were from Private Property. Hewn sleepers inspected totalled 4,561 cubic feet only, all of which came from Private Property.

Other sawn timber inspected totalled 515,219 cubic feet of which 15,549 cubic feet were from Private Property. The number of piles and poles inspected totalled 1,668, amounting to 38,840 lineal feet.

TIMBER PRODUCTION.

Production of Timber for year ended 30th June, 1955 (Exclusive of Mining Timber, Firewood, Piles and Poles).

	Mill Logs.					Hewn Timber.				Grand Totals.	
	Jarrah.	Karri.	Other.	Totals.		Jarrah.		Wandoo.			
				In Log.	Recovery of Sawn Timber.	In Log.	In Square.	In Log.	In Square.	In Log.	In Square.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Crown Lands	26,960,199	8,060,613	*2,446,830	37,467,642	13,459,137						
Private Property	12,517,282	1,092,748	†1,562,610	15,172,640	5,456,830	22,450	4,490	355	71	15,195,445	5,461,391
Grand Totals	39,477,481	9,153,361	4,009,440	52,640,282	18,915,967	22,450	4,490	355	71	52,663,087	18,920,528

Figures in columns (1), (2), (3), (4), (6), (8) and (10) are in the round based on full volume measure.

Figures in columns (5), (7), (9) and (11) are the volumes of sawn or hewn timber in the square.

* Comprises:—947,793 cub. ft. Pine; 938,710 cub. ft. Wandoo; 308,735 cub. ft. Yarri; 182,589 cub. ft. Sheoak; 24,337 cub. ft. Tuart; 23,951 cub. ft. Red Tingle Tingle; 17,669 cub. ft. Marri; 2,849 cub. ft. Yellow Tingle Tingle; 197 cub. ft. Other.

† Comprises:—1,143,007 cub. ft. Wandoo; 206,303 cub. ft. Yarri; 134,657 cub. ft. Marri; 33,250 cub. ft. Sheoak; 22,629 cub. ft. Pine; 22,492 cub. ft. Tuart; 272 cub. ft. Other.

In addition to the above total, 71,842 tons of Wandoo logs were used for Tannin extract.

The Quantity of Sawn and Hewn Timber Produced from Crown Lands and Private Property for the past Two Years.

Year.	From Crown Lands.			From Private Property.			Total Quantity.	Estimated Value of Timber Obtained.
	Sawn Timber other than Sleepers.	Sawn Sleepers.	Hewn Sleepers.	Sawn Timber other than Sleepers.	Sawn Sleepers.	Hewn Sleepers.		
1953-54	11,271,444	2,201,442	487	4,165,178	705,910	967	18,345,428	£ 9,299,756
1954-55	11,517,307	1,941,830	....	4,499,775	957,055	4,561	18,920,528	9,710,278

7. SAWN TIMBER PRODUCTION AND DISTRIBUTION.

The total production of sawn and hewn timber for the year amounting to 378,410 loads shows an increase of 11,502 loads (three per cent.) over the previous year, the increases being 6,945 loads in Jarrah, 1,872 loads in Karri, and 2,685 loads in other timbers. The principal increases were in pine and blackbutt.

Production was in the form of:—

Sleepers—Sawn and Hewn	58,069
Sawn timber, other than sleepers	320,342

The apparent distribution of this timber was:—

Sleepers—	
Interstate	23,244
Overseas	2,179
Local by deduction	32,646
Sawn timber other than Sleepers.	
Interstate	32,299
Overseas	11,274
Local by deduction	276,769

Distribution of Jarrah and Karri was :—

Jarrah.

Sleepers—	loads.	loads.
Interstate (including other durable hardwoods such as Wandoo and Blackbutt)	19,084	
Overseas	2,179	
Local	32,646	
		53,909
Sawn Timber other than Sleepers—		
Interstate (including other durable hardwoods such as Wandoo and Blackbutt)	23,877	
Overseas	3,956	
Local (Jarrah only by deduction)	203,071	
		230,904
		284,813

Karri.

Sleepers—	loads.	loads.
Interstate	4,160	
		4,160
Sawn timber other than sleepers—		
Interstate	8,422	
Overseas	7,318	
Local by deduction	46,004	
		61,744
		65,904

Production of Karri amounted to 65,904 loads or 17·4 per cent. of the total. Four thousand, one hundred and sixty loads were supplied as sleepers to the Commonwealth Railways for use on the Trans-continental Railway. Timber merchants report having had no difficulty in selling all the Karri they have had available.

The per capita consumption of sawn timber continues at a high figure, being in the vicinity of 260 super feet of sawn timber other than sleepers produced within the State, and 30 super feet of sleepers, for a population of about 650,000. This high rate is due to the demand for timbers for house building, new offices and industrial buildings.

Timber merchants report that a slackening in demand for house building scantlings has been offset to some extent by the increased demand for large section timbers for other buildings. With the increased production and more competitive interstate and overseas supplies to the Eastern States, stocks of Jarrah are beginning to accumulate.

Cases.—Due to the heavy February rains in the South-West, the apple crop was much larger than anticipated with the result that some difficulty was experienced in meeting the demands for dump cases. To meet this discrepancy new sources of supplies were sought, both in Karri and Pine. A number of pine cases were imported from South Australia and approximately 10,000 were supplied in local pine. Karri cases made up of sliced sides have not been altogether satisfactory, the main difficulty being cupping of the boards. Although tests carried out indicate that this cupping can be eliminated by seasoning, the saw-miller concerned was not prepared to undertake this work at short notice for the 1955 packing season, but he has agreed to change over to the sawing of boards until the 1956 pack commences when slicing will be necessary to meet the heavy commitments.

Case manufacturers are finding a ready market for white-wood cases made from pine thinnings and recent sales of larger logs than usual indicate that more sawmillers are anxious to participate in the softwood business.

Timber Utilisation Committee.

During the year, a Committee was convened by the Conservator (as Chairman), comprising representatives of the following Associations or organisations :—

Master Builders, Sawmillers and Timber Merchants, Architects, Furniture Trades, State Housing Commission, Public Works Departments (Commonwealth and State), and Builders' Guild.

The purpose of the Committee was to secure better understanding and co-ordination between timber producers and consumers, and encourage more rational and economic use of the timber supplies available. Much good work was accomplished, and it is intended to keep this Committee in operation.

8. FIREWOOD PRODUCTION AND CONSUMPTION.

Firewood production for the State was estimated at 804,000 tons, over half of which was used for industrial and mining fuel. It is interesting to note, however, that sawdust is being increasingly used as fuel by some industrial concerns and sawmills.

This increasing use of sawdust as fuel, particularly by sawmills, has reduced the relative amount of firewood used as mill fuel. One hundred and thirteen thousand tons of sawdust fuel was recorded.

Although figures show that the total consumption of firewood has fallen 12 per cent. since last year, it is an unreliable statistic, as documentary returns to the Forests Department cover only about half the total estimated below. It is, however, known that there has been a decrease due to the Goldfields Water Supply pumping stations and a number of gold mines ceasing to use wood fuel.

Firewood Statement, 1954-55.

	Crown Land. tons.	Private Property. tons.	Total. tons.
1. <i>Production for the State.</i>			
(a) Domestic Firewood—			
Firewood Permits (South-West)	42,751	513	43,264
Mill Waste sold as firewood (estimated 50 per cent. of total)	36,507	22,005	58,512
Domestic use on Goldfields	22,981	.....	22,981
Total Domestic Firewood as shown by returns received	102,239	22,518	124,757
(b) Industrial Firewood—			
Supplied under License Nos. 3 to 8 pumps	43,523	.....	43,523
Other pumps	140	.....	140
Factories, etc.	48,945	513	49,458
Millwaste sold as firewood (estimated 50 per cent. of total)	36,508	22,005	58,513
Millwaste used as firewood	110,421	3,933	114,354
Total Industrial Firewood as shown by returns received	239,537	26,451	265,988
(c) Mining Firewood	62,526	.....	62,526
Total Firewood produced as shown by returns received	404,302	48,969	453,271

2. *Consumption.*

	tons.	
Estimated Domestic	339,216	(at 2 tons per dwelling)
Industrial	358,599	(ex Government Statistician)
Pumping Stations	43,663	(as per F.D. returns)
Mining	62,526	(as per F.D. returns)
Total	804,004	

Approximately 50 per cent. of the firewood consumed was supplied from Crown Land.

9. SANDALWOOD.

The sandalwood stock position at Fremantle remained in a precarious position throughout the year and the quantity of wood received from pullers was hardly sufficient to meet the requirements of the export market.

The main supplies were again received from the Laverton area and one puller commenced operations in the Ravensthorpe district where some particularly large logs were obtained.

The price to the puller remained at £26 per ton on rails, country sidings, and a subsidy of £4 per ton was approved for any sandalwood obtained more than 100 miles from the nearest railway siding on or after 1st February, 1955.

The quantity of sandalwood delivered during the year (including deliveries from orders placed during the previous year) was :—

	Tons.
Crown Lands—	
Logwood (including roots and butts)	451
Pieces	19
Private Property—	
<i>Nil</i>	—
	470

The total quantity of sandalwood exported was 390 tons as compared with 398 tons for the previous year. A local sale of 1cwt. of sandalwood was made for wood-turning purposes.

No orders for logwood were placed by the oil distillers, but 109 tons of roots and butts severed from the logwood were delivered to distillers for oil distillation purposes.

Five thousand eight hundred and sixty-one pounds of sandalwood oil was produced by local distillers during the year and 5,800 pounds was exported out of the State.

It is of interest to record the results of an experimental planting of sandalwood on Reserve 2886 near Pingelly. Although sandalwood nuts sown in ploughed and cleared ground during the years 1895, 1896 and 1897 germinated freely they sickened and died during the hot weather. Annual sowings from 1898 to 1900 inclusive were more successful when the nuts were sown in the uncleared scrub portion of the reserve, and it was noted that one of the plants measured nearly 6ft. in height when not quite two years old. In 1901 there were about 250 plants still alive in the scrub country. Blanks were resown in 1903 and after that year no further sowings took place.

The area received very little attention during subsequent years and the trees suffered from grazing and fires.

Periodic inspections were made in 1934, 1939, 1945, 1952 and 1953, and finally in February, 1955, instructions were issued for the remaining sandalwood to be pulled and marketed in order that the area could be released for alienation. The wood was of particularly sound quality, of good aroma, and one log was 10in. in diameter at the butt after cleaning.

During the decade 1920 to 1930, experiments over considerable areas near Kalgoorlie were carried out, following the realisation that sandalwood was a parasite which required particular host plants for its best development. Nuts were also sown in a number of centres, and even within pine plantations it was found that sandalwood could survive.

The results generally from experimental work have not warranted any attempt to grow this species on a large scale.

10. FOREST PRODUCE.

Piles and poles totalling 249,536 lineal feet, approximately 50,000 lineal feet less than last year, were obtained from Crown Lands, of which 14,168 lineal feet were supplied by Departmental cutting. Records available show that nearly 425,000 lineal feet were obtained from Private Property, but in addition to this an unknown quantity from Private Property goes into local use, for which the Department has no records.

Nearly one-third of a million fence posts and rails were recorded, but this record must fall far short of the actual consumption, as returns are not received from private owners.

Tanning materials form one of the most important items of forest produce apart from sawn timber. From Crown Lands 205 tons of Mallet bark were sold, of which 99 tons came from Plantation thinnings. Six hundred and thirty-nine tons came from Private Property. Wandoo logs used for the preparation of tannin extract totalled 71,842 tons, 45,985 tons from Crown Lands and 25,857 tons from Private Property.

Mining timber, apart from that supplied by sawmills, reached over 40,000 tons, over three-quarters of which came from Crown Lands, and about half of which came from the inland forest areas.

Although very little charcoal was produced for general consumption, the Wundowie Charcoal-Iron Industry produced approximately 10,000 tons for use in the process of iron production.

Numerous other items of interest produced from forest areas are shown in the following table.

It has been estimated that this forest produce has a total value of over £2 millions.

FOREST PRODUCE NOT ELSEWHERE INCLUDED IN PRODUCTION TABLES
OBTAINED DURING YEAR ENDED 30th JUNE, 1955.

Description of Forest Produce.	South-Western Division and Agricultural Areas.			Northern Central and Eastern Goldfields.	Total.
	Supplied by Depart- ment.	Other Crown Lands.	Private Property.*	Crown Lands.	
Mining Timber	84	18,005	5,556	16,789	40,434 tons
Sleepers for Goldfields Wood Lines .....	.....	.....	.....	9,069	9,069 cub. ft.
Charcoal (includes 10,058 tons ex Wundowie) .....	.....	161	10,058	.....	10,219 tons
Piles and Poles	14,168	235,368	424,892	.....	674,428 lin. ft.
Fencing Posts and Rails	30,864	153,360	17,129	119,254	320,607 No.
Strainer Posts	769	1,894	49	.....	2,712 No.
Mallet Bark (includes 99 tons Thinnings)	99	106	639	.....	844 tons
Wandoo Timber for Tannin Extract .....	.....	45,985	25,857	.....	71,842 tons
Bean, etc., Sticks .....	.....	.....	.....	4,300	4,300 No.
Scout Staves	144	.....	.....	.....	144 No.
Boronia Blossom .....	.....	1,363	40	.....	1,403 lb.
Stone .....	.....	657	.....	.....	657 cub. yds.
Sand .....	.....	72	.....	.....	72 cub. yds.
Sawdust consumed as fuel† .....	.....	.....	.....	.....	113,004 tons

* Complete figures for Private Property are not available. Only information furnished to the Department has been included.

† The apportionment between Crown Lands and Private Property unknown.

11. FOREST MANAGEMENT AND WORKING PLANS.

Apart from a few specialised officers, all foresters practice forest management, and the results of their work in the field are covered in the various paragraphs dealing with works accomplished.

All such works, however, are guided by the over-all proposals known as Working Plans, and the building up of these plans depends firstly on a thorough stocktaking of the forest.

Following the 1952 report of the Royal Commission and the recognition that a new General Working Plan should be built upon more extensive data than that used for the 1945 plan, a drive was made to assess the State Forests and potential forest areas.

In January, 1954, a Working Plans Office was set up at Manjimup with a number of field parties who combined their work with photogrammetry, which is recognised as the basis of all current forest assessment.

During the 18 months which have intervened, remarkable progress has been made and figures are emerging on which a reliable General Working Plan can be based.

Working Plan area statements during this 18 months have covered 2,250,000 acres.

The initial steps of mapping the country by air photo interpretation and photogrammetry have now reached 3,000,000 acres, including the work covered during the year under review which covered the production of maps for 925,000 acres.

The main work of interpretation is done at Head Office, where satisfactory equipment and a small well-trained staff is available but having to work under cramped conditions, pending a re-allocation of accommodation in Public Offices. Another limitation on this work during the past year has been the inability of the State Mapping Committee to provide sufficient photo coverage, with the result that field work got ahead of photo interpretation.

The importance of the study of our forests from the air has gained full recognition, and consideration is being given to obtaining our own aeroplane for future work.

The following table shows in greater detail the main items of air photo interpretation work.

<i>Type Mapping.</i>				
Selection of p.p.'s., P.ts. control.	Templets cut and laid down.	Interpretation.	Plotting with Multiscope.	Map compilation.
acres.	acres.	acres.	acres.	acres.
413,500	658,700	1,052,200	1,052,400	925,000

Working Plan activities embrace also the work of preparing topographical maps and a large variety of records known as Progress Plans, and apart from this routine work, the main items covered include :—

20-chain scale maps to cover 640 square miles.

Revision of two 80-chain scale lithographs and commencement on a further map.

Standard base sheets used in the production of air photo maps covering 1,800 square miles.

In the course of this work 237 miles of survey notes were plotted and 136 miles of assessment work extracted from field books.

Sundry work associated with Working Plans also included 295 plans for permit documents, the copying and reproduction of soil survey plans and blueprints for houses and sundry engineering and architectural plans.

During the year a short school was held at Manjimup for trainees engaged on survey work.

12. REFORESTATION.

The categories of forest cut over during the year were as follows :—

State Forest—		acres.	acres.
Virgin bush	....	24,516	
Old bush	....	23,088	
			47,604
Other Crown Lands—			
Virgin bush	....	32,261	
Old bush	....	25,204	
			57,465
* Private Property with timber reserved to the Crown		29,143	
			29,143
Total	....		134,212

* This figure is unreliable due to the mixed nature of forest areas on private property.

A total of 40,186 acres were recorded as having top disposal treatment and it can be taken that the whole of the area of State Forest cut over under the Group Selection system—nearing 2,000,000 acres, has now been regenerated. It is for the most part carrying a sapling stand as well as the immature trees retained for future cutting cycles.

It is regrettable that past records are such that it is not possible at present accurately to divide the 2,000,000 acres cut over into Jarrah, Karri and Wandoo, but these figures are now being examined.

For the year under review, an estimate of the areas cut over on State Forest and Crown Lands is :—

		acres.
Jarrah	....	93,700
Karri	....	3,800
Wandoo	....	7,500
		105,000

13. ROAD CONSTRUCTION AND MAINTENANCE.

The road and track system upon which management and protection to a large extent depends was increased to a total of 14,054 miles by the addition of 632 miles. Maintenance grading covered 2,433 miles.

In addition, about 89½ miles of grading were carried out within plantations, and the Department undertook construction of 42½ miles of roads for the Main Roads Department, for which Federal Aid Road Grant money was made available. Next to the Main Roads Department, the Forests Department is the largest roading organisation in the State. Many miles of forest roads are used by local settlers and the travelling public generally, a fact which is recognised by the Main Roads Department in its annual grant of funds for development and maintenance of roads in the forest country.

14. AFFORESTATION.

Pine Plantations.

The total net area of pine plantation is now 20,403 acres, distributed as shown in Appendix 4A, and for the year under review, 963 acres were planted.

Policy has been revised to concentrate upon the planting of the more rapid growing *Pinus radiata*, and during the year suitable land to the extent of 2,554 acres was purchased.

As there was a shortage of Loan funds, the Reforestation Fund was drawn on to purchase land and to get clearing well in advance for a programme of 2,000 acres.

Appendix 4B, shows the distribution of age classes by plantations. This table will not appear generally in Annual Reports, but is included at this date as it will form a permanent record on which to build future working plan tables.

Appendix 4C, is included for the same reason, to summarise to date the yields of pine timber from the various centres and shows that for the current year 18,916 loads were obtained, while since the commencement of marketing in the 1920 decade approximately 110,000 loads of pine have been marketed from the plantations as a whole.

Mallet.

The Mallet plantations now total 18,250 acres, of which 54 acres were sown in the current year.

In the course of thinning, 99 tons of bark were produced, and mining timber was cut for the Murchison Goldfields, totalling 2,529 cubic feet, all of which was lagging poles.

A total of 844 tons of bark was produced for the State, most of which came from Private Property.

15. HOUSING AND COMMUNICATIONS.

During the year, 35 houses were constructed to accommodate forest workmen and staff. The Department now has 389 houses for its employees.

Telephone communications were extended by the building of 86 miles of new lines, bringing the total length of line to 1,615 miles, while maintenance carried out included the annual winter overhaul of all 70 radios held by the Department and the general repair of 550 telephones throughout the network.

New radio installations included the erection of redesigned aerial systems for major transmitters at Dwellingup and Collie; and the fitting of radio equipment and a new aerial at Gnangara. Improved battery systems were placed in service for the Dwellingup and Pemberton stations.

A number of vehicles acquired by the Department during the year were wired and fitted with radios for the fire season.

The telephone and radio network is now more efficient than it has been in previous years and is expected to meet the demands of any emergency which should arise.

16. FOREST PROTECTION—FIRE CONTROL.

The area covered by the fire control organisation comprises 1,206,350 acres of "A" zone afforded intensive protection, and 1,112,200 acres less completely protected. This area of 2.3 million acres is virtually the cut-over forest, but there is still an area of 2 million acres unprotected. The area under protection is only 6,000 acres greater than last year, but considerable preliminary development of protective measures has taken place in the extreme South in the areas North of Walpole where new areas were opened up by roads last year.

In this Far South region, an additional 240,000 acres has been recently dedicated State Forest and development is proceeding rapidly. Over 300 miles of new roads and tracks of access were opened up and by the end of the 1956 summer, it is anticipated that this entire area will be sub-divided into blocks of 5,000 to 10,000 acres.

Detection coverage is adequately provided by Beard and Boorara Trees, Mt. Burnside and Mt. Frankland. A new lookout on Granite Peaks will be manned next season. The major telephone network is completed and a supplementary network linking Beard, Boorara and Mt. Burnside is under construction.

The Fire Season.

The Season under review was unusual in several factors ; a phenomenally dry winter permitted controlled burning off right throughout the year, the Northern region reporting six days in June, five days in July and seven in August on which controlled burning was carried out, but rains above average in October and November very seriously curtailed spring burning in the Northern areas.

In the North, December brought a heatwave from 15th to 22nd when every day was above high-summer hazards, but in the South, the weather remained cool and mild and considerable burning was carried out.

With a dry January and early February, the season promised to be very severe, but record rains of up to 12 inches in the middle of February brought a welcome break as far as fire hazards were concerned.

The season then climaxed with four dangerous days commencing with 16th March, that is the end of the prohibited burning period, but this weather following the heavy rains in February permitted the safe burning of some 24 year old Karri compartments under ideal conditions of mild weather and moist litter.

Heavy rains early in April terminated the fire season.

In the North, the air masses were generally drier than last year with only one day of less than 15 per cent. relative humidity, although there were six days of dangerous hazard and fifteen of severe summer.

There were 36 days with temperatures of 90 degrees and over, 13 days over 95 degrees, three days over 100 degrees, and in spite of the late rains in November and the record precipitation in February, the average hazard was 6.2 which is the highest since 1949-50 and slightly higher than the average for the last 10 years.

In the South, the season generally was mild with only six severe summer days, but the average hazard was 4.28, which is the highest since 1951-52 and higher than the average for the previous five years.

Controlled Burning.

The accelerated controlled burning programme was continued this year, greatly assisted by the unusually dry winter, but curtailed somewhat by rains in October and November.

During the year, a total of 460 miles of firebreaks of varying width up to 20 chains were burnt, a falling off of 668 miles on last year's figures. This decrease reflects the amended policy of concentrating on more widespread prescribed burning throughout the forest as opposed to burning narrow breaks, which are costly, difficult to control and of doubtful efficiency in stopping bushfires.

Last year and to a much lesser extent, this year, it was necessary to burn some firebreaks as a preliminary to putting a prescribed burn through compartments unburned for a number of years, and eventually the only narrow breaks burnt will be those associated with plantation areas.

Prescribed burning was carried out over an area of 317,243 acres during the year, an increase of 98,337 acres over last year, making a total of 1,600 miles of firebreaks and over half-a-million acres for the last two years.

Burning conditions were generally good and very satisfactory burns were obtained.

Practically the whole of the burns obtained can be described as excellent and some very difficult areas in the Karri forest were burned successfully without any damage, removing a serious hazard that had built up over the years.

Advanced burning ahead of logging operations was carried out as usual and in the North, top disposal burns were put through as a routine measure, but in the Karri forests, tops are being held for burning before the expected 1956 seed fall, except in the Donnelly River and Barlee Brook areas where a satisfactory seed year occurred and successful top disposal was carried out over 5,200 acres, to precede the seed fall.

In all, an area of 44,176 acres of advanced burn and top disposal was covered during the year, bringing the total area of controlled burning to 460 miles of breaks and 361,500 acres.

Access.

New roads and tracks of access, some still very rough, are being constructed to open up the new areas being brought under protection in the South and a number of arterial roads designed to speed up fire attack in the North were built, while many of the old roads have been improved to provide faster travel and better access.

In the Karri forest where new logging operations are taking place, many miles of timber extraction routes are being constructed by the sawmilling companies and these assist as roads of access to the new areas being brought under protection.

In all, a total of over 600 miles of new roads were opened up during the year.

Detection.

Thirty-three lookouts were manned during the year, three of them only intermittently, while Big Tree and the Greenbushes Tree were not required.

The first tower in the Northern region was manned on 21st September, and in the Southern region on 7th December, and the last watch ceased on 20th April, although no towers in the South were manned after the 8th of that month.

Three new lookout stations were brought into operation during the year, two of them being in the Metropolitan pine plantation, Gnangara and Somerville.

The third new lookout is on Mt. Frankland, North of Walpole, but was only needed for a short period. This point gives excellent coverage over the Walpole and Denmark settlement areas, the horizon in the East being the Porongorups and Stirling Ranges at 70 miles and in the West, Mt. Chudalup (46 miles). The horizon elsewhere is generally upwards of 25 miles.

Publicity.

Every opportunity was taken to bring the idea of fire prevention before the public during the year, by talks to schools, local authorities and bush fire brigades.

A number of annual meetings of Rural Fire Control Officers and Bush Fire Brigades were attended and advice and explanations given as required.

Fire Prevention pamphlets were distributed with notices of intention to burn and increasing interest is being shown in fire weather forecast notice boards. Two requests were made by local authorities to have these boards erected in their areas. This will be attended to during the coming summer.

Co-operation with Settlers.

Co-operation with the Department continues to increase and two more districts were brought under the Departmental detection system, whereby Departmental lookout stations advise a central office, usually the local telephone exchange, of any fires occurring in the district of the local authority, to the mutual benefit of both Forestry and Rural interests.

The early notification of fires provides for more rapid attack and less wasted effort on the part of the local fire brigades and it encourages a feeling of co-operation in fire control between the local bush fire brigades and the Department.

The local fire control officer is assured of early accurate detection, and he and the other brigade officers come to feel a part of the over-all State-wide fire control organization, rather than an isolated group with the Government employees operating separately.

Many bush fire brigades were assisted in the controlled burning of breaks and of clearing fires during the year and this co-operation was greatly appreciated, although the general picture was marred by a complaint from the Narrogin Road Board of non-co-operation and carelessness in the use of fire on the part of this Department and requesting an enquiry.

This complaint was most unexpected as the co-operation between the Department and the local officer in the Cuballing-Narrogin areas has always been most close and cordial, and investigation disclosed that the Board had been misled by one settler, a newcomer to the district, and the complaint was without foundation.

At the annual meeting of Fire Control Officers at Narrogin, the question was discussed very fully with an officer of the Department, the whole matter cleared up and relationships are now cordial.

Following a very large private property fire in the Bridgetown area in January, 1955, at which Departmental gangs did very good work, one local Road Board member stated in the Press that the Department was responsible for the whole fire.

Investigation revealed that he based his statement on his interpretation of a Clause in the Bush Fires Act, which he claimed, placed full responsibility for all fires on the Department once a forest officer arrived at a fire, irrespective of whether the fire was on State Forest or private property. It was feared that this adverse publicity might do considerable damage to Departmental prestige in the district and weaken the co-operation between the Department and local brigades, but discussions in the district revealed that all brigade officers recognised the episode as a one-man opinion, and at a subsequent Court case over this fire charging a local settler with not having taken the necessary precautions under the Act, the local Justices stated in their decision that the Department had done everything in its power to control the fire and was in no way whatever responsible for the escape of the fire in the first place.

Several warnings were given in cases of breaches of the Bush Fires Act and one prosecution resulted in a conviction with a £10 fine and reimbursements of costs of suppression.

Fires During the Season.

The first fire of the season was a small fire in the Metropolitan area on 27th September, 1954, lit by children and doing no damage and the last fire attended was also in the Metropolitan plantations when 50 acres of pines were burnt through on 24th April, 1955.

The total number of fires attended by Departmental gangs was only 278 compared with 324 last year and an average of 350 for the previous 10 years. The lowest previous figure was 217 in 1950-51.

These fires burnt over 1,180 acres of good quality forest in the intensively protected zone, while in the same zone, a further 2,970 acres of firebreak belts and wasteland were burnt.

Most of this latter area was allowed to burn out as an addition to the controlled burning programme.

A further 7,468 acres of less intensively protected forest was burnt during the year.

There were nine fires in the pines in the Metropolitan area, mostly caused by children and doing no damage, but two of them severely burnt 56 acres of older pines.

Fortunately, the main fire occurred in a compartment that was being clear felled to make way for a better strain and caused no actual loss as the pine killed is being salvaged and sold.

The following table sets out causes of all fires attended by Departmental gangs during the year :—

W.A.G.R. Locomotives	....	....	....	....	21
Bush Locomotives	....	....	....	....	29
Escapes from controlled burning	....	....	....	....	28
Bush Workers	....	....	....	....	14
Hunters and Fishermen	....	....	....	....	14
Householders	....	....	....	....	4
Farmers burning	....	....	....	....	64
Travellers	....	....	....	....	13
Lightning	....	....	....	....	8
Deliberately lit	....	....	....	....	8
Children	....	....	....	....	13
Mill surroundings	....	....	....	....	16
Mine surroundings	....	....	....	....	3
Other Government agencies	....	....	....	....	8
Tractors	....	....	....	....	4
Natives	....	....	....	....	3
Power Mains	....	....	....	....	1
Unknown	....	....	....	....	27
Total	....	....	....	....	278

Once again fires resulting from farmers' burning operations head the list of fire causes with 64 fires, an increase of 26 on last year and represents 23 per cent. of the total fires attended. This is a cause that should be possible of reduction, and although it is well below the record year of 1949-50 with 242 fires from this cause, representing 42.5 per cent. of the total, it is still far too high.

The next highest is fires caused by bush locomotives with 29 fires which is below average. This falling off may be due in part to the fact that some bush lines have been replaced by road haulage which is gradually superseding timber tramlines, and it is worthy of note that locomotives on the Nyamup line, which are equipped with Brew arresters, again came through the season without lighting one fire.

The 27 fires lit by hunters, fishermen and travellers is the lowest on record, and it is anticipated that increased propaganda from the Bush Fires Board and the provisions of more roadside fireplaces might be expected to maintain a reduction in this source of fires.

Sixteen fires from Mill surroundings is well above average, and is equal to the record year 1948-49. This source of fire is showing a continuing increase which must be stopped by closer attention to Mill surroundings, though fortunately most fires from this source this year were in "C" zone and did no serious damage.

One new cause, "State Electricity Commission Power Mains," appears on this list, and as high voltage power mains extend through the forest areas and the installations become aged, it is possible that more fires will be lit by electrical faults developing at the tops of poles.

During the year under review two sawmills were destroyed by fire, one at Northcliffe in August, 1954, and the Jardee mill in February, 1955. The loss of the Jardee Mill was a serious blow to the Timber Industry and was particularly unfortunate in view of the fact that it was only just rebuilt after having been burned down in April, 1948.

Considering the dislocation of the trade and the tremendous cost of replacement of these large mills, it is thought that some form of automatic alarm system, such as is commonly installed in factories might well be employed to give warning of smouldering areas well before flaming occurs.

Improved sawmill design and better fire precautions generally are prime necessities in the Timber Industry.

A very pleasing feature of the season was the number of fires occurring in or near the forest areas that were attended to by local bush fire brigades or gangs of local mills, without the necessity for Departmental gangs to be engaged.

17. PLANT AND EQUIPMENT.

It is not generally known that the Forests Department covers a substantial field of engineering in its annual works. The large programme of road construction and maintenance has been outlined in previous paragraphs, while in the process of most forest activities engineering operations play a large part, such as in the clearing of land for pine planting and in the direct conversion of timber both from plantations and indigenous forest by Departmental employees.

This engineering work during the post-war decade has necessitated rapid increases of transport, plant, equipment and workshops.

During the year the Department has increased its fleet of motor vehicles, bulldozers, graders, etc., by 40, and disposed of 23 old vehicles, leaving a total of 339 mobile units.

This equipment, together with fire fighting pumper units, power saws, settlement lighting and water supply plants and seven sawmills, is spread over a distance of up to 250 miles from Perth, and to maintain such plant various garages and workshops have been equipped over a period of time.

Regional Workshops have been set up at Manjimup, Dwellingup, Ludlow, Gnangara and Collie. In the case of Manjimup and Dwellingup, new workshop buildings have been completed and equipment is about to be transferred and installed to bring the capacity to the standard where the heaviest of vehicles can be handled and to fabricate various types of equipment used for specific duties on forest engineering.

The Regional Workshop equipment includes modern heavy duty lathes, portable electric welders, drills, hydraulic presses, and sufficient auxiliary tools. Hydraulic cranes mounted on truck chassis have been supplied to the Regional Workshops at Dwellingup and Manjimup for use in the repair of the heavier units.

Six Divisional Maintenance Garages which can do simple overhauls have been established at Pemberton, Mundaring Weir, Grimwade, Tallanalla, Gleneagle and Shannon River.

These garages contain equipment commensurate with the type of vehicles, mills, etc., which came under the local programme of the particular Division, and whilst the requirements may vary slightly, these garages are self-sufficient for all ordinary light repairs, and in some cases can carry out a limited amount of fabrication.

Three Class "A" District Garages have been set up in the more remote areas. These Districts are generally isolated from any immediate help in the case of breakdowns, and are therefore supplied with sufficient tools and light equipment to enable them to carry on without calling on Divisional garage assistance which is generally many miles distant. Because of this isolation, the Department is dependent in many cases on the limited knowledge of drivers and other semi-skilled staff who can help themselves over a minor difficulty.

Another 18 ordinary District Garages have been set up for the purpose of ensuring the daily maintenance of vehicles in these areas. These Districts do not have installed equipment, but carry sufficient hand tools to operate their own plant, particularly the servicing of firefighting pumpers and the everyday greasing and running maintenance.

Amongst the mobile equipment purchased this year have been Road Graders, Front End Loaders, Tip Trucks and Bulldozers, and these are assisting in the increasing road repair and construction plan. Front End Loaders have become a necessity in the loading of gravel and sand.

Fourteen trucks were purchased, including four of the four-wheel drive type. These have replaced several ex-Army disposal vehicles which have been otherwise disposed of or relegated to crane-trucks.

The four-wheel drive vehicles are essential as fire gang trucks and heavy duty firefighting units on certain steep gradients of the hardwood forests, and in soft sand of the coastal plantations.

Fifteen utilities purchased were for use by Foresters in their Districts and the various duties of Junior Officers.

Six caravans have been provided for Forest Surveyors, Assessors, Grader Drivers, and others on work which necessitates continuous living in the bush, and blueprints have been prepared for the construction of camping trailers for the use of bush workers. This will mean a saving of labour and time during shifting of gangs, as well as an improvement in living conditions.

A Mallet Bark Chipper is being built to augment the income from this industry and provide some seasonal work for the employees of the Mallet forest.

Preparations have been made for Carinyah and Pimelia Settlements to be supplied with electric lighting facilities from their own small plant. Electric light is one of the important amenities necessary to encourage families to live in the more isolated settlements.

18. ARBORICULTURE.

The demand for trees from local authorities and private buyers continued to increase.

The State Nursery at Hamel, which produces trees for distribution to farmers and rural areas, disposed, during 1954, of 61,427 trees to local authorities and private persons. The Kalgoorlie Nursery, which raises trees for use in the low rainfall inland areas, distributed 11,543 plants for the calendar year 1954, the plants being disposed of chiefly between May and August. One hundred and twenty-eight different species were available for sale.

This nursery has now been moved to Dryandra near Narrogin.

Pinus radiata proved the most popular tree distributed from Hamel, being closely followed by Sugar Gum, *Pinus pinaster*, Ti-tree, Tuart and Brush Box.

Distribution figures from Kalgoorlie show that Coral-Flowered Gum, River Gum, Dundas Blackbutt, Dundas Mahogany, Flat Topped Yate, Yellow-Flowered Blackbutt, and Gimlet were the most popular and sales of these seven species accounted for over 60 per cent. of the total number of trees distributed.

The Department has been performing a public service by supplying trees from Hamel and Narrogin Nurseries to country residents, local authorities, and other Civic bodies at prices below the cost of production, but a revision of prices made during the year brought the business to a more equitable basis.

A Revenue and Expenditure statement is as follows :—

<i>Revenue.</i>		<i>Expenditure.</i>		
	£		£	£
To Sale of Trees (including freight)—		By Hamel Nursery—		
Hamel Nursery	3,144	Wages	2,504	
Narrogin Nursery	999	Incidentals	568	
Excess of Expenditure over Revenue	446	„ Narrogin Nursery—		
		Wages	1,099	
		Incidentals	418	
			—————	3,072
				1,517
	—————			—————
	£4,589			£4,589
	—————			—————

Arboreta.

With a view to stimulating the interest of residents of the relatively treeless inland portions of the State, the Department has established arboreta at the following centres :—

Mullewa.	Mingenew.	Lake Camm.
Morawa.	Southern Cross.	Jennacubbine.
Yuna.	Kulin.	Wongan Hills.
Moora.	Newdegate.	Newdegate Pilot Farm.
Watheroo.		

These are being maintained usually by arrangement with local residents.

One new 10-acre area was commenced at Kalgoorlie during the year.

Seed Distribution.

The Departmental Seed Store caters for sales to the public, both within Australia and overseas, of over 200 species of trees and shrubs, about half of which are Australian Eucalypts.

The year under review showed an increase of sales to £1,456, compared with £850 last year, and parcels of 185 different species were sold.

19. RESEARCH.

The Perth section of the Research Branch has operated under some difficulty through being located in the Native Affairs Department, Wellington Street, remote from the Head Office of this Department. This position has been recently improved, and although in cramped quarters, the section is now housed in Treasury Buildings.

Two senior and three junior officers are now engaged almost wholly on research, investigations and extension work, and have been more specifically employed in the projects listed below :—

Pine Nutrition.

A complete review of past experimental work has been partially completed and action taken to discard numerous sample plots on varying soil types and in unsatisfactory strains of *Pinus pinaster*.

In general, it has been found that satisfactory responses to manures on Coastal Sand Plain country have been confined to superphosphate. Indications are that responses to other manures are either negative or too slight to be of practical application.

Metallic Zinc.

An experiment was inaugurated in the Grimwade Plantation with *Pinus radiata* in an endeavour to test the reaction to metallic zinc.

Treatment was by 1/10 ounce zinc metal plates, filings and dust introduced into the planting hole at time of planting.

Nursery Treatment with Zinc.

A section of the *Pinus pinaster* nursery at Gngagara was treated with a light dressing of zinc oxide lightly hoed in between rows. Seedlings from this section have been marked in the field and their development will be noted.

Nursery Disorders.

A disorder in the *P. radiata* stock of the Gngagara nursery became evident in mid-summer. The symptoms were yellowing, bronzing and twisted needles. All were corrected by spraying with zinc sulphate solution at 2½ per cent. strength. This is the first instance in which a nursery disorder has responded to zinc treatment.

Blackboy Eradication.

Mineral oils of various types have been used to kill blackboys (*Xanthorrhoea* spp.), but work carried out by this Department indicates that the addition of 2.4.5.T+ gives a considerable increase in effectiveness.

Figures were :—

Power Kerosene	50% kill.	Cost plus labour, 12s. 3d. per acre.
Power Kerosene + Hormone	70% kill.	Cost plus labour, 14s. 6d. per acre.
Spent Transformer Oil	30% kill.	Cost plus labour, 7s. 9d. per acre.
Spent Transformer Oil + Hormone	80% kill.	Cost plus labour, 10s. 0d. per acre.

Application was in early September at the rate of 2 to 3 ozs. per growing point, using a fine conical nozzle and pressure spray with pistol grip control. Hormone quantities were 1.6 ozs. 40 per cent. Active Principle 2.4.5.T + per gallon of solution.

Further work is necessary on respraying and types of oil for complete information on total kill, but taking into consideration the fact that plants dealt with were multi-headed due to previous cultivation damage, there is sufficient ground to assume that the above figures are on the low side, for single-headed plants, and that a mop up spray six months after initial application would give complete control.

Eucalyptus Coppice Eradication.

2.4.5.T + (2.4.5.T Butyl Ester + 2.4.D Ethyl Ester) had been successfully used in controlling Eucalypt coppice on firebreaks. The species involved were Jarrah (*E. marginata*), Tuart (*E. gomphocephala*), Marri (*E. calophylla*), Wandoo (*E. redunca* var. *elata*), Powder Bark Wandoo (*E. accedens*), Mallee species and Mallet (*E. astringens* and *E. Gardneri*).

The work was done in the Narrogin, Mundaring and Perth areas, and it was found that water solution at the rate of 2ozs. 40 per cent. Active Principle hormone emulsion per gallon of water was the most economical and effective dosage. Marri in the Narrogin area, due to a heavier leaf cuticle resisted water solution, and this necessitated using kerosene as a diluent and penetrator.

Time of application is important as coppice production is virtually confined to the spring and summer, and some degree of occlusion occurs in stumps in the dormant bud activation period.

It has been found uneconomical to spray coppice more than 3ft. high; this necessitates bashing of large coppice and waiting for new growth to occur prior to spraying. The general rule is to spray from December to April following bashing, but undisturbed coppice should be sprayed in November.

Litter Fall.

The established investigation to check litter fall in the Jarrah forest was continued, and the figures to date are shown in the table hereunder:—

Litter Fall—Cwt./acres—O.D. Weight.

Year.	Jarrah Forest Type.		
	Virgin Forest.	Pole Forest.	Sapling Forest.
1951	18.27	22.64	20.54
1952	19.56	26.65	20.45
1953	19.69	30.13	26.12
1954	17.45	27.37	29.06

In connection with the project a series of analyses were carried out on the decomposing litter to determine the plant nutrients held in the medium. The results were as follows:—

Amount of Plant Nutrients in Forest Floor Litter.

Element.	Lb./acres.		
	Age of Litter (Years.)		
	2	10	21
Calcium	35	77.4	111.8
Magnesium	23.4	57.5	52.8
Potassium	4.5	19.5	13.3
Manganese	0.44	1.9	2.7
Phosphorous	2.3	3.0	2.5
Nitrogen	29.3	48.0	116.5

The above figures indicate that the litter provides an important reserve of plant nutrients for tree growth.

Effect of Light Controlled Burning.

An attempt has been made to determine quantitatively the effect of regular controlled burning in spring on the surface soils of the Jarrah Forest. A large number of samples were collected from regularly burnt firebreaks and from adjacent compartments protected for upwards of 15 years. The summarised results shown below indicate that light spring burning has had no appreciable effect on the surface soils of the Jarrah forest.

Analysis.	Protected Compartment.	Firebreak.
Soil Acidity pH	6.24	6.36
Specific Conductivity $\times \frac{10^{-4}}{10}$ mhos	0.426	0.391
Organic Carbon %	2.961	3.000
Nitrogen %	0.125	0.128
Exchangeable cations m.e. %		
Calcium	4.19	4.23
Magnesium	1.44	1.42
Potassium	0.11	0.11
Sodium	0.35	0.33
% Composition of Exchangeable Metal cations.		
Calcium	68	69
Magnesium	24	23
Potassium	2	2
Sodium	6	6
Exchangeable hydrogen m.e. %	12.00	10.97
% Metal Ion Saturation	34	36

Soil Analyses.

In connection with the search for suitable country for an expanded *P. radiata* planting programme, soil surveys and soil analyses have increased. In these surveys emphasis has been placed on the location of kraznozems (red-brown loams derived from basic rocks), and over one hundred analyses have already been completed. The tempo of this phase of the work of the Dwellingup Research Station is expected to increase during the coming year.

Jarrah Stocking.

An investigation of some half-a-million acres of cut-over Jarrah Forest has revealed that, in the mean period of twenty years since the original cut, practically all forest with a co-dominant height of greater than 90 feet regenerates satisfactorily, accepting a basis of 12 feet by 12 feet spacing as adequate. With lower co-dominant height, regeneration is generally satisfactory at an 18 feet by 18 feet spacing.

In this investigation it has become evident that crown ratio increases in the Jarrah forest as quality and rainfall decreases to the East. Co-dominant heights of below 90 feet show a crown diameter ratio of the order of 19 compared with 15 for the better class forest.

Ligno-tuberous Advance Growth.

Jarrah regrowth has the peculiarity of resting in a procumbent ligno-tuberous stage for a long period of years, and it has been found that a leading dynamic shoot is not sent up, under natural conditions, until a ligno-tuber of $3\frac{1}{2}$ -4 inches diameter has been developed. This may take more than 15 years and is rarely less than 8-10 years.

Volume Determined from Air Photos.

An intensive study of air photos checked by field investigations was made for an area of Jarrah forest in the Jarrahdale district. The subject area was first cut over 60-80 years ago.

The forest was first divided into strata by :—

- (1) Height (quality) classes.
- (2) Structure (component) classes.
- (3) Density (stocking) classes.

and tables of stocking and volume were obtained from sample plots.

This work showed that it is possible to decide volume figures for cut-over prime Jarrah Forest from air photos and enabled the following broad criteria to be established.

Virgin forests are greatly understocked in the smaller size classes, and future forests will be managed on a sustained yield basis which presupposes a normal series of size classes on each area, under a selection system of silviculture. With this exception satisfactory stocking, that is areas over which no silvicultural treatment is considered warranted, may be given as :—

Twenty-four loads per acre (potential log volume) for Site Quality 1. (105 feet-115 feet co-dominant height.)

Twenty loads per acre (potential log volume) Site Quality II. (95 feet-105 feet co-dominant height.)

Sixteen loads per acre (potential log volume) Site Quality III. (85 feet-95 feet co-dominant height.)

and an indication of the open nature of the Jarrah forest can be gained by expressing the above as 50 per cent. (\pm 5 per cent.) of the theoretical full stocking using a crown ratio of 15 and square spacing.

In the Jarrahdale investigation under the selection system, fully stocked areas have been found to approximate 70 per cent. of the theoretical value and show the following volumes :—

Thirty-eight loads per acre (potential log volume) Site Quality I.

Thirty-two loads per acre (potential log volume) Site Quality II.

Twenty-six loads per acre (potential log volume) Site Quality III.

This project is being extended to include areas of forest below the site qualities quoted above.

Jarrah Sylviculture.

Observations on the growth and behaviour of second growth Jarrah crowns has shown that new leaves are produced in early summer after the flowering period, and that new flower buds are produced in the axils of the new leaves at the same time.

Flowering is observed nearly 12 months later, and the seeds ripens at the end of the following year (two years after bud formation).

During the period in which new leaves are forming, the equivalent of a full canopy of leaves from the old crown is falling. The majority of old leaves are dropped after 12 to 15 months, but some are retained, to fall at 24 to 27 months.

While the above information is fairly general for healthy young trees, the growth and fall of leaves varies with age, vigour, season, position on the tree and the incidence of insects, frost and fire.

20. LIBRARY.

With some assistance, both technical and clerical, provided for the Librarian during the year, the classification of the Library under the Oxford System of Decimal Classification for Forestry is well under way.

The books and annual reports have been classified, catalogued and reshelved. The periodicals have been classified and reshelved, and binding has been brought up to date.

As a result of classification, duplicates and unwanted material has been sorted out. Lists of surplus publications have been circulated to other Libraries who have availed themselves of the material available.

In September 1954, a monthly Accession List was inaugurated and circulated to all Field Officers and interested Libraries. This list contains not only the list of new publications received, but also all periodicals and articles indexed.

Much greater use is now being made of the Library, and over 4,000 loans were made during the year.

21. EMPLOYMENT IN FORESTRY.

The number of wage earners directly employed in the forest has been estimated at approximately 7,227, made up of :—

Firewood cutters, pole getters, etc., on permits	278
Sandalwood getters	13
Goldfields firewood cutters, contractors, and wood-line employees, and carters	200 est.
Direct employees of the Forests Department :—	
Head Office	75
Field Staff	114
Wages employees (average for 12 months)	467
Contractors and Employees	100
	756
Sawmill employees including bush workers at 30th June, 1955 *	5,879
Apiarists, estimated (122 sites are registered)	101
	7,227
Total	

* Includes employees of all registered sawmills.

It is of interest that on certain permit areas with sufficient area for permanent life for the sawmill the working population carried is approximately one person per 500 acres.

The decline in employment is mainly in connection with firewood production on the Goldfields and for the Pumping Stations at Mundaring.

22. FOREST OFFENCES.

Ninety-six offences were reported to Head Office during the year. In twenty cases proceedings were taken against offenders. Fines totalling £134 and costs of £80 18s. 9d. were inflicted.

Twenty-eight warnings were issued, and the remainder were dealt with by charging royalty, forfeiture of deposits, collection of damages, or the confiscation and sale of timber illegally cut.

The amount received by the Department in this way totalled £752 19s. 10d.

23. EDUCATION AND PUBLICITY.

No staff schools were held during the year, but conferences of senior staff were held at monthly intervals to discuss matters of policy and procedure.

In order to give Departmental employees throughout the South-West, some detailed experience in power-saw falling, a training school of six weeks' duration, commencing on 11th October, 1954, was held at Gleneagle.

Here, under a competent power-saw faller, twenty-one employees were instructed in the use and care of drag, circular and chain power saws.

During September, the Department participated in four displays of publicity value :—

1. *Wild Life Show*.—Fire damage and Jarrah forest soil and litter research were featured. Supporting features were fire control films and a display of Eucalypt flowers.
2. *Wild Flower Show*.—Eucalypt and wildflower blossoms were supplied with Kodachromes of Western Australian Flora. An officer gave talks on flora at intervals during the day and evening.
3. *Australian Inland Mission Show (Kalgoorlie)*.—Pine utilisation and hardwood species were illustrated and supported by photos and blossom displays.
4. *Royal Show*.—Fire control organisation was illustrated by a stimulated Divisional Fire Control Office with a large Divisional Map showing positions of Fire Towers, Headquarters and Radio Stations.

This was supported by examples of fire damage in hardwood and pine forests and a display of various fire fighting vehicles.

24. STAFF MATTERS.

A serious staff position has had to be faced insofar as a few heavily worked senior officers are managing the accelerated affairs of forestry with a long gap below them to the very junior ranks. This has resulted from post-War losses of senior men to important posts in other States or organisations, and the effect of the last War on staff recruitment.

By Agreement dated the 25th February, 1955 (as published in the Government Gazette of the 18th March, 1955) between the Civil Service Association of Western Australia (Incorporated) and the Public Service Commissioner of Western Australia officers employed under the Public Service Act were granted marginal adjustments as from the 24th December, 1954.

Similar marginal adjustments were granted from the 24th December, 1954, to officers of the Field Staff General Division employed under the Forests Act, in accordance with an agreement dated the 9th June, 1955, between the Civil Service Association (Incorporated) and the Conservator of Forests as published in the Government Gazette of the 25th June, 1955.

The Commonwealth Government engaged Mr. G. E. Brockway for a period of two years to work for the Pakistan Government under the Colombo Plan and advise that Government on reforestation projects in arid areas. He commenced six months long service leave on the 5th January, 1955, and sailed for Karachi on the 23rd January, 1955.

Four officers employed under the Public Service Act were reclassified during the year, *viz.*, Messrs. G. W. M. Nunn, J. H. Jones, J. H. Harding, and B. Boettcher.

Mr. W. H. Eastman was promoted to Divisional Forest Officer and Mr. A. B. Hatch to Forest Research Officer. In August, 1954, the latter officer completed a special meteorological course at the Central Weather Bureau, Melbourne.

Messrs. J. B. Campbell and P. J. McNamara were appointed as Assistant Divisional Forest Officers, and Mr. E. Sprengel (Assistant Divisional Forest Officer) resigned to take an appointment as Forest Resources Officer with State Saw Mills.

The Stores Branch transferred to a new stores building at Collier on 25th May, 1955.

A Senior Forest Utilisation Officer is being sought.

The importance of attracting sound and active men to the business of Forestry has been recognised by upgrading the more important positions of both professional and general divisions.

A Trainee Scheme to which 20 young men have already been recruited this year aims at securing adequate General Division field officers for replacements and expansion as greater areas of forest come under management.

The recruitment of sufficient young men suitable ultimately to fill the higher professional ranks presents a problem not yet solved. Liberal Forestry scholarships are offered annually by the Commonwealth Government and the State Government which cover a total of four years at the University of Western Australia and the Australian School of Forestry. These scholarships are worth up to £1,000 over the four year period.

Nevertheless, there are insufficient students of the right type coming forward to take up the profession, although its status and remunerations in this State have been recently raised to a level comparable with that of other professions available in the Public Service.

Over the past year, important staff reorganisations have been made aiming at decentralisation of authority.

Sylviculture has been strengthened by seconding young professional officers for periods to specific problems and by placing a number of young professional officers on special technical duties. Management and Plantations have been organised under an experienced senior with two juniors divorced from administration, and a third officer on planning duties for the far South.

The tempo of Research has been quickened by placing three young professional officers most of their time on specialised duties.

Mechanical engineering activities have been unified by the appointment of a specialist as Mechanical and Plant Engineer to the Department.

Soil survey has been emphasised as the key to plantation work and a succession of officers deputed to this task to ensure a wider dissemination of the applied knowledge gained from Research and past practice.

Forest protection has been assisted by recalling to the Department from outside industry an experienced forester to assist the Fire Control Superintendent in training staff.

I desire to place on record appreciation of the active co-operation and loyal support of all members of both field and office staffs during the year, and to record with regret the decease of Assistant Forester P. E. Russell and the retirement of Assistant Forester R. Whitnish, both of whom had given long and faithful service to Forestry.

A. C. HARRIS,
Conservator of Forests.

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APPENDIX 1A.

CONSOLIDATED REVENUE FUND.

Consolidated Statement of Revenue and Expenditure for 1954-55.

		<i>Revenue.</i>				<i>Expenditure.</i>				
		£	s.	d.	£	s.	d.	£	s.	d.
Territorial—										
To Timber :										
	Log Royalties	445,310	11	3						
	Sleeper Royalties	26,344	1	6						
	Sawn Timber Royalties	3,858	16	3						
	Miscellaneous Royalties	25,236	5	10						
	Goldfields Revenue	8,076	19	8						
	Rents and Leases	2,123	11	6						
					510,950	6	0			
	„ Sandalwood				52,751	11	1			
Departmental—										
	To Inspection Fees	5,651	2	0						
	„ Miscellaneous Sales	4,884	8	5						
	„ Pine Conversion Sales	103,206	5	10						
	„ Hardwood Conversion Sales	98,596	1	2						
	„ Miscellaneous Receipts	3,691	14	10						
	„ Recoupable Projects	25,023	3	0						
					241,052	15	3			
					£804,754	12	4			
								£804,754	12	4

APPENDIX 1B.

Statement of Reforestation Fund Expenditure for the year ended 30th June, 1955.

To Division No. 1.—				By Forests Improvement and Reforestation		
Busselton	2,562	2	10	Fund—General Account	503,737	10 8
Ludlow	409	19	9	By Federal Aid Roads Grant	60,488	3 2
Willcock	190	14	3			
			3,162 16 10			
„ Division 2.—						
Administration	1,306	12	8			
Mundaring	18,408	10	9			
			19,715 3 5			
„ Division 3.—						
Administration	9,804	4	10			
Dwellingup	38,049	0	11			
Research Station	308	15	3			
			48,162 1 0			
„ Division 4.—						
Administration	5,102	2	1			
Collie	32,412	1	0			
			37,514 3 1			
„ Division 5.—						
Administration	1,031	16	4			
Kirup	47,970	17	5			
			49,002 13 9			
„ Division 6.—						
Administration	7,289	10	3			
Manjimup	69,076	3	1			
			76,365 13 4			
„ Division 7.—						
Narrogin			173 18 8			
„ Division 8.—						
Administration	1,240	2	0			
Gleneagle	17,668	10	7			
			18,908 12 7			
„ Division 9.—						
Gnangara			1,967 11 6			
„ Division 10.—						
Administration	4,104	13	8			
Harvey	31,439	19	1			
			35,544 12 9			
„ Division 11.—						
Administration	4,163	19	9			
Pemberton	87,837	6	9			
			92,001 6 6			
„ Kalgoorlie			272 1 11			
Total Divisional exp.			382,790 15 4			
„ Training of Staff—			126 9 3			
Head Office Research....			86 17 11			
Preparation of Working Plans, etc.			813 10 4			
Salaries and Allow- ances—Head Office			34,251 3 6			
Incidentals			6,797 18 6			
Manjimup Drawing Office			330 17 3			
Workers' Compensation Premiums			5,187 15 1			
Fire Insurance Premiums			1,093 18 3			
Insurance of Vehicles			4,225 17 3			
Communications and Electrical Services			4,113 19 9			
Equipment not charged to Division			89,374 15 8			
Purchase of Land			14,615 9 8			
Stores Branch Build- ing—Collier			4,542 12 11			
Pay Roll Tax			6,529 17 6			
Cash Orders Unallocated			18,258 3 9			
			£573,140 1 11			
Less Miscellaneous Ex- penditure Recoups			8,914 8 1			
			£564,225 13 10			
					£564,225 13 10	

APPENDIX 1C.

Statement of Afforestation Expenditure for year ended 30th June, 1955.

To Division 1.—				By General Loan Fund	108,064	10	8	
Administration—				„ Cash Orders Unallocated	5,094	10	2	
Keenan	1,098	5	3					
Ludlow	2,248	2	8					
Willcock	952	0	2					
Keenan	6,797	6	0					
Ludlow	18,751	17	4					
Willcock	4,169	18	8					
			34,017	10	1			
„ Division 2.—								
Mundaring			7,048	12	2			
„ Division 5.—								
Administration	2,813	6	1					
Grimwade	8,473	17	4					
			11,287	3	5			
„ Division 7.—								
Administration	2,488	15	5					
Narrogin (Mallet Plan- tations)	7,958	17	4					
			10,447	12	9			
„ Division 8.—								
Gleneagle			2,523	10	0			
„ Division 9.—								
Administration—								
Applecross	727	6	5					
Collier	1,184	5	2					
Gnangara	4,668	15	11					
Applecross	1,719	7	1					
Collier	1,394	0	0					
Scaddan	8	16	3					
Gnangara	16,253	13	7					
			25,956	4	5			
„ Division 10.—								
Administration—								
Harvey Weir	521	0	3					
Myalup	1,013	17	9					
Harvey Weir	1,366	12	9					
McLarty	2,846	3	0					
Myalup	7,208	0	0					
			12,955	13	9			
„ Purchase of Land			1,600	0	0			
„ Salaries—Head Office			5,103	5	3			
„ Workers' Compensation Premiums			786	13	3			
„ Pay Roll Tax			1,432	15	9			
			£113,159	0	10			
						£113,159	0	10

APPENDIX 2A.

Exports* of Timber, Tanning Substances and Essential Oils during the Year ended 30th June, 1955.

Item No.	Item and Country of Origin.	Quantity.	Value.	Item No.	Item and Country of Origin.	Quantity.	Value.
6309	<i>Wicker, Bamboo, and Cane, and all Manufactures of, N.E.I.—</i> Commonwealth States (included in Item 6529). Hong Kong		£ 84				
	Total, Wicker, Bamboo and Cane Manufactures		84				
	TIMBER.						
6312	<i>Box Shooks—</i> Commonwealth States : Northern Territory	cub. ft. 209	226	6441	<i>Timber—continued.</i> <i>Sawn Timber, Dressed, N.E.I.—</i> <i>Flooring :</i> Commonwealth States : Victoria	cub. ft. 18,392 3,079 410	£ 17,079 2,283 583
6313	<i>Shooks and Staves, Cask and Vat—</i> Commonwealth States : New South Wales	cub. ft. 18,324 1,117 7,078 38 478	£ 19,105 1,178 8,038 40 386	6449	Victoria	15,142 2,392 858	14,868 1,807 1,004
	Victoria				South Australia		
	Queensland				Northern Territory		
	South Australia				United Kingdom		
	Northern Territory	27,635	28,747		Christmas Island (Indian Ocean)		
				6479	<i>Other Dressed Timber :</i> Commonwealth States : New South Wales		
6352	<i>Sleepers—</i> <i>Jarrah :</i> Commonwealth States : South Australia				Victoria		
	United Kingdom	954,208	514,051		Northern Territory	1,063	985
	Malaya, Federation of	10,924	7,665		Cocos Islands		
	New Zealand	2,220	1,347		Malaya, Federation of		
	South Africa, Union of	40,585	30,845				
		55,215	35,360				
		1,063,152	589,268	6505	<i>WOOD MANUFACTURES.</i> <i>Casks and Vats, Empty—New—</i> Commonwealth States New South Wales	No. 9,789 9	£ 63,803 70
6354	<i>Karri :</i> Commonwealth States: South Australia	206,988	100,209		United Kingdom		
	Northern Territory	1,000	366			9,798	63,963
		207,988	100,575	6529	<i>Articles of Wood, N.E.I.—</i> Commonwealth States : New South Wales		
6410	<i>Sawn Timber, Undressed, N.E.I.—</i> <i>Softwoods :</i> Christmas Island (Indian Ocean)	4	7		Victoria		
6426	<i>Hardwoods (Jarrah) :</i> Commonwealth States : New South Wales				Queensland		
	Victoria				South Australia		
	Queensland				Tasmania		
	South Australia				Northern Territory		
	Northern Territory				Christmas Island (Indian Ocean)		6,063
	United Kingdom	1,173,283	592,903		Singapore		130 801
	Canada	81,616	54,567	6540	<i>Furniture, N.E.I., of Wood or Partly of Wood—</i> Commonwealth States : New South Wales		
	Ceylon	429	320		Victoria		
	Christmas Island (Indian Ocean)	7,624	5,618		South Australia		
	Cocos Island	3,075	2,313		Northern Territory		
	Malaya, Federation of	278	199		Christmas Island (Indian Ocean)		6,250
	Malaya, Federation of	452	323		Cocos Islands		198
	Mauritius and Dependencies	9,154	5,130		Kong Hong		65
	New Zealand	44,149	29,222		Singapore		480
	South Africa, Union of	33,050	21,036		Singapore		1,243
	Bahrain Islands	504	352		Sweden		100
	Iraq	10,960	7,095				
	Netherlands	6,484	4,804		Total, Wood Manufactures		8,336
		1,371,049	723,880		Total, Wicker, Timber and Wood Manufactures		79,893
6428	<i>Hardwoods (Karri) :</i> Commonwealth States : Victoria						2,014,996
	South Australia			8710	<i>ESSENTIAL OILS.</i> <i>Eucalyptus—</i> Commonwealth States : New South Wales	lb. 80,272	£ 7,509
	Northern Territory				Victoria		
	United Kingdom	421,092	201,078		South Australia		
	Christmas Island (Indian Ocean)	176,680	119,902		United Kingdom		
	New Zealand	1,012	765		Canada		
	Rhodesia, Southern	127,592	85,177		Singapore		
	South Africa, Union of	858	524		South Africa, Union of		
	Belgium	16,144	10,587		Germany, Federal Republic of		
	Denmark	1,264	949		Netherlands		
	Germany, Federal Republic of	244	175		Sweden		
	Netherlands	9,711	7,817				
	Sweden	23,793	22,865				
		90	67				
		783,485	449,906	8715	<i>Citrus—</i> Commonwealth States : New South Wales	lb. 5,595	£ 7,976
6429	<i>Hardwoods (Other) :</i> Commonwealth States : New South Wales				Victoria		
	South Australia				Queensland		
		246	124		South Australia		

* Exports to Commonwealth States are of Western Australian origin and Oversea Exports are of Australian origin.

APPENDIX 2A—continued.

Exports* of Timber, Tanning Substances and Essential Oils during the Year ended 30th June, 1955.

Item and Country of Origin.	Quantity.	Value.	Item No.	Item and Country of Origin.	Quantity.	Value.
ESSENTIAL OILS—continued.				TANNING SUBSTANCES.		
<i>Essential Oils, N.E.I.—</i>				<i>Tanning Bark—</i>		
Commonwealth States :	lb.	£	1600	Commonwealth States :	cwt.	£
New South Wales	16,743	13,070		New South Wales	1,242	2,426
Victoria	8,358	9,719		Victoria	8,851	18,768
Queensland	124	279		Queensland	1,096	1,930
South Australia	411	759				
Tasmania	2	2				
	25,638	23,829			11,189	23,064
United Kingdom	9,744	18,691	1610	<i>Tanning Extracts—</i>		
Canada	904	1,354		(Information not available for publication.)		
Kenya	76	114				
Uganda Protectorate	105	51				
Hong Kong	13,910	6,170	1620	<i>Other Tanning Substances—</i>		
India, Republic of	4,428	1,657		United Kingdom	100	371
Malaya, Federation of	50	128		Denmark	1,001	3,440
New Zealand	189	251		Germany, Federal Republic of	1,004	3,032
Singapore	2,204	3,848		Norway	53	200
South Africa, Union of	1,780	1,244		United States of America	2,009	7,231
France	2,422	1,475				
Indonesia, Republic of	76	190			4,167	14,274
Netherlands	2,418	4,424				
United States of America	336	860				
	64,280	64,286		Total, Tanning Substances (excluding Tanning Extracts		37,338
Total, All Essential Oils		80,822		Total Value of All Exports shown on this Return		£2,133,156

* Exports to Commonwealth States are of Western Australian origin and Oversea Exports are of Australian origin.

APPENDIX 2B.

Imports of Timber, Tanning Substances and Essential Oils during the Year ended 30th June, 1955.

Item No.	Item and Country of Origin.	Quantity.	£	Item No.	Item and Country of Origin.	Quantity.	£
301-309	<i>Wicker, Bamboo and Cane and All Manufactures of N.E.I.—</i>						
	Commonwealth States : £				TIMBER—continued.		
	New South Wales ... 522				<i>Composite Item for Hardwoods :</i>		
	Victoria ... 303				Commonwealth States : cub. ft. £		
	Queensland ... 23				New South Wales ... 2,107 1,545		
	South Australia ... 112				Victoria ... 92 80		
			1,160		Queensland ... 27,524 30,569		
	United Kingdom ... 29				Tasmania ... 20,198 13,429	49,921	45,023
	Hong Kong ... 1,350			6441	<i>Sawn Timber, Dressed, N.E.I.—</i>		
	Malaya, Federation of ... 7,354				<i>Flooring : (a)</i>		
	Malta ... 650				Norway ... 6,069 4,633		
	Singapore ... 3,065				Sweden ... 14,287 10,654		
	Burma ... 34					20,356	15,287
	China ... 157			6449	<i>Other Dressed Timber : (a)</i>		
	Indonesia, Republic of ... 9,357				United Kingdom ... 149 359		
	Italy ... 625				Borneo, British ... 2		
	Japan ... 3,263				Germany, Federal Republic of ... 21 57		
			27,044		Netherlands ... 372 110		
					Norway ... 1,934 1,637		
	TIMBER.					2,478	2,103
312	<i>Box Shooks—</i>				<i>Composite Item for Sawn Timber, Dressed :</i>		
	Commonwealth States : cub. ft. £	cub. ft.			Commonwealth States : £		
	South Australia ... 875 1,000	8,842	13,300		New South Wales ... 5,545		
	Tasmania ... 7,967 12,300	8,721	3,791		Victoria ... 36,106		
					Queensland ... 12		
	Malaya, Federation of ... 1,950 1,441	13,873	8,202		South Australia ... 11		
	New Zealand ... 186 87	33,691	27,202		Tasmania ... 444		42,118
	Netherlands ... 119 381						
	Portugal ... 13,873 8,202						
313	<i>Shooks and Staves, Cask and Vat—</i>			6469	<i>Veneers—</i>		
	Commonwealth States : cub. ft. £				Commonwealth States : sq. ft. £	sq. ft.	
	Victoria ... 365 871				New South Wales ... 993,488 30,596		
	South Australia ... 83 172	448	1,043		Victoria ... 21,873 1,889		
			117		Queensland ... 455,281 6,014	1,470,642	38,499
	Australia (re-imported) ... 117		1,160		Gold Coast and British Togoland ... 6,227 32	6,227	32
					France ... 14,391 297	14,391	297
					Sweden ... 19,026 920	19,026	920
						1,510,286	39,748
330	<i>Logs—</i>			6479	<i>Plywood (including Blockboard)—</i>		
	<i>Softwoods:</i>				Commonwealth States : sq. ft. £		
	Borneo, British ... 135,846 34,532				New South Wales ... 202,864 9,771		
	Canada ... 266 320				Victoria ... 7,265 632		
	Singapore ... 16,295 4,133	152,407	38,985		Queensland ... 1,303,642 64,066		
					South Australia ... 5,360 626	1,519,131	75,095
					Total, Timber Imports ...		503,181
340	<i>Hardwoods :</i>				WOOD MANUFACTURES.		
	Borneo, British ... 143,353 38,168			6505	<i>Casks and Vats, Empty—New—</i>		
	Malaya, Federation of ... 9,123 2,427				Commonwealth States : No. £	No.	
		152,476	40,595		New South Wales ... 16 68		
359	<i>Sawn and Split Timber—</i>				Victoria ... 24 157	40	225
	Malaya, Federation of ... 1,487 1,049				Australia (re-imported) ... 572 3,661	612	3,886
11	<i>Sawn Timber Undressed, N.E.I.—Softwoods—</i>			6508	<i>Clothes Pegs of Any Material—</i>		
	<i>Redwood and Western Red Cedar †</i>				Commonwealth States : Gross £	gross	
	Sweden ... 987 744				New South Wales ... 1,937 1,149		
					Victoria ... 7,688 2,973		
12	<i>Douglas Fir †</i>				South Australia ... 128 52		
	Canada ... 22,857 16,470				Tasmania ... 29,737 10,036	39,490	14,210
	United States of America ... 19,618 13,370				United Kingdom ... 100 102		
		42,475	29,840		Denmark ... 11,175 1,463		
					Netherlands ... 1,400 190		
15	<i>Other Softwoods †</i>				Sweden ... 13,322 2,237		
	Borneo, British ... 72,806 40,829					65,487	18,202
	Malaya, Federation of ... 2,360 1,632			6513	<i>Incubators, Foster Mothers and Brooders of Any Material—</i>		
	Indonesia, Republic of ... 4,951 3,153				Commonwealth States : No. £	No.	
	Sweden ... 1,153 914				New South Wales ... 87 1,977		
	United States of America ... 9,457 9,736				Victoria ... 1 62		
		90,727	56,264		South Australia ... 1 8	89	1,147
				6516	<i>Match Splints—</i>		
	<i>Composite Item for Softwoods :</i>				Finland ... 18,088		
	Commonwealth States : cub. ft. £			6518	<i>Tool Handles, Unattached, of Any Material—</i>		
	New South Wales ... 62 66				Commonwealth States : £		
	Victoria ... 498 621				New South Wales ... 32,397		
	Queensland ... 10,693 11,272				Victoria ... 10,259		
	South Australia ... 5,263 6,590	16,516	18,549		Queensland ... 594		
					South Australia ... 1,215		
					Tasmania ... 3,028		
24	<i>Sawn Timber Undressed, N.E.I.—Hardwoods—</i>						47,493
	<i>Hickory †</i>				United Kingdom ... 6,366		6,366
	United States of America ... 1,912 3,169				Canada ... 122		122
25	<i>Persimmon †</i>				Germany, Federal Republic of ... 22		22
	United States of America ... 2,125 2,655				Netherlands ... 579		579
29	<i>Other Hardwoods †</i>				Sweden ... 244		244
	Borneo, British ... 84,883 46,742						47,493
	Malaya, Federation of ... 23,628 16,178						6,366
	Singapore ... 5 15	108,516	62,935				122
							22
							579
							244
							54,836

† Interstate Imports included in Composite Item for Softwoods.
* Quantity not recorded.

‡ Interstate Imports included in Composite Item for Hardwoods.
(a) Interstate Imports included in Composite Item for Sawn Timber Dressed.

APPENDIX 2B—continued.

Imports of Timber, Tanning Substances and Essential Oils during the Year ended 30th June, 1955.

Item No.	Item and Country of Origin.	Quantity.	£	Item No.	Item and Country of Origin.	Quantity.	£
	WOOD MANUFACTURES—continued.				ESSENTIAL OILS.		
6528	<i>Oars and Sculls—</i>			8701	<i>Essential Oils, Natural, non-spirituous—</i>		
	Commonwealth States : No. £			8729	Commonwealth States : lb. £	lb.	
	New South Wales ... 984 1,787				New South Wales ... 146,477 39,198		
	Victoria ... 72 85				Victoria ... 15,098 6,993		
	South Australia ... 42 144	1,098	2,016		South Australia ... 25,955 8,245	187,530	54,436
					United Kingdom	574	463
6501,	<i>Articles of Wood (except Furniture) N.E.I.—</i>				Ceylon	3,305	1,535
6515,	Commonwealth States : £				Zanzibar and Pemba	4,489	3,274
6520	New South Wales ... 29,145				India, Republic of	2,352	2,322
	Victoria ... 47,377				Seychelles and Dependencies	8,892	5,979
	Queensland ... 7,519				Windward Islands	225	465
	South Australia ... 6,558				Australia (re-imported)	588	645
	Tasmania ... 62				China	1,967	1,709
					Czechoslovakia	4	4
	United Kingdom		90,661		France	71	166
	Ceylon		7,498		Indonesia, Republic of	4,505	3,163
	Hong Kong		13		Spain	46	39
	India, Republic of		270		United States of America	1,001	2,264
	Malaya, Federation of		41			215,549	76,464
	New Zealand		27				
	Singapore		8				
	Austria		26				
	China		3				
	Denmark		98				
	Egypt		87				
	France		4				
	Germany, Federal Republic of		122				
	Italy		455				
	Japan		84				
	Netherlands		4				
	Norway		28				
	Sweden		270				
	Switzerland		493				
	United States of America		17				
			1,240				
			101,449				
6540	<i>Furniture of Wood or Partly of Wood—</i>			1600	<i>Tanning Bark—</i>		
	Commonwealth States : £				Commonwealth States : cwt. £	cwt.	
	New South Wales ... 13,966				South Australia ... 7 15		
	Victoria ... 29,335				Tasmania ... 85 149	92	164
	Queensland ... 2,016						
	South Australia ... 30,498						
			75,815				
	United Kingdom		4,855				
	Canada		2				
	India, Republic of		603				
	Hong Kong		969				
	Malaya, Federation of		53				
	Singapore		214				
	China		60				
	Germany, Federal Republic of		1,146				
	Italy		522				
	Netherlands		71				
	Norway		25				
	Sweden		1,665				
	United States of America		293				
			86,203				
	Total, Wood Manufactures		285,827				
	Total, Wicker, Bamboo, Cane, Timber and Wood Manufactures		816,052				
				1611	<i>Tanning Extracts—</i>		
				1619	Commonwealth States : cwt. £		
					New South Wales ... 5 42	114	607
					Victoria ... 109 565	890	1,555
					India, Republic of	5,163	22,120
					South Africa, Union of	860	824
					Sweden	6,967	25,106
				1620	<i>Other Tanning Substances—Natural Origin—</i>		
					Commonwealth States : cwt. £		
					New South Wales ... 20 70	189	723
					Victoria ... 68 245	343	856
					South Australia ... 101 408	592	546
					India, Republic of	1,124	2,125
					Norway		
					Total, Tanning Substances		27,395
					Total Value, All Imports shown in this Return		£919,911

APPENDIX 2C.
SUMMARY OF EXPORTS OF FOREST PRODUCE SINCE 1835.

Year.	Timber.		Year.	Timber.		Wood Manu- factures.	Tanning Materials.	Essential Oils.
	Cub. ft.	Value.		Cub. ft.	Value.	Value.	Value.	Value.
1836 (a)	10,000	£ 2,500	1891	1,273,950	£ 89,179	£	£	£
1837	....	....	1892	1,082,650	78,419	....	....	....
1838	....	....	1893	512,950	33,888	....	....	....
1839	....	....	1894	1,033,700	74,804	....	....	....
1840	....	....	1895	1,255,250	88,146	....	....	....
1841	....	....	1896	1,545,600	116,420	....	....	....
1842	....	....	1897	2,303,300	192,451	....	....	....
1843	....	....	1898	4,086,150	326,195	....	....	....
1844	....	....	1899	6,913,550	553,193	....	....	....
1845	(b)	163	1900	5,725,400	458,461	....	....	....
1846	....	....	1901	7,150,600	572,354	....	....	....
1847	2,550	255	1902	6,256,750	500,533	....	....	....
1848	12,200	1,120	1903	7,748,450	619,705	....	859	....
1849	3,350	333	1904	8,072,300	654,949	....	32,876	....
1850	....	....	1905	8,709,500	689,943	....	154,087	....
1851	10,500	1,048	1906	(c) 8,830,700	708,993	....	140,720	....
1852	....	....	1907	(c) 6,409,550	511,923	....	98,773	....
1853	1,250	268	1908	(c) 9,869,509	813,591	....	79,934	....
1854	7,050	806	1909	(c) 10,830,450	867,419	....	59,633	....
1855	52,200	5,220	1910	(c) 12,074,100	972,698	....	93,733	....
1856	58,500	7,023	1911	(c) 12,449,509	986,341	....	83,470	....
1857	76,900	12,076	1912	(c) 11,297,100	903,336	....	49,094	....
1858	70,500	9,671	1913	(c) 13,619,850	1,089,481	....	47,377	....
1859	69,200	9,449	1914 (d)	(c) 6,279,750	502,153	....	18,197	5
1860	29,250	2,340	1915 (e)	(c) 9,968,500	808,392	....	6,127	381
1861	67,250	6,051	1916 (e)	5,432,100	441,991	....	10,208	1,102
1862	54,800	4,932	1917 (e)	3,890,650	310,893	....	18,959	2,060
1863	27,750	2,497	1918 (e)	3,436,250	274,141	....	16,886	3,995
1864	68,800	7,151	1919 (e)	4,135,750	332,584	11,535	18,875	3,987
1865	32,900	2,963	1920 (e)	5,065,300	465,731	21,935	22,121	3,704
1866	58,300	5,508	1921 (e)	9,816,250	1,137,819	24,916	23,073	10,107
1867	183,950	15,693	1922 (e)	8,309,750	1,041,047	22,248	13,323	6,878
1868	85,650	6,849	1923 (e)	7,911,310	997,454	12,377	21,161	20,075
1869	56,750	4,541	1924 (e)	11,126,861	1,367,517	11,505	29,606	39,877
1870	8,000	638	1925 (e)	11,844,303	1,477,997	13,928	40,136	42,057
1871	179,900	14,273	1926 (e)	12,001,384	1,522,958	10,072	15,056	47,819
1872	157,200	17,551	1927 (e)	12,580,262	1,651,149	8,727	15,818	26,454
1873	218,500	15,304	1928 (e)	10,384,784	1,265,383	7,783	27,662	39,131
1874	37,000	2,590	1929 (e)	7,635,237	960,435	6,603	35,850	63,307
1875	68,150	4,771	1930 (e)	6,579,743	807,425	4,687	40,623	77,510
1876	345,600	24,192	1931 (e)	4,127,856	507,382	26,615	35,333	56,170
1877	342,350	23,965	1932 (e)	3,032,673	381,700	85,488	42,016	59,301
1878	219,050	23,743	1933 (e)	2,235,540	262,617	80,332	33,352	33,331
1879	336,150	36,979	1934 (e)	4,030,830	487,248	76,107	20,904	26,720
1880	580,900	63,902	1935 (e)	5,326,117	636,466	65,494	15,234	35,363
1881	627,250	69,742	1936 (e)	5,598,180	679,522	50,665	12,237	27,526
1882	662,550	66,252	1937 (e)	5,673,903	699,684	52,338	14,491	38,185
1883	792,750	79,277	1938 (e)	7,545,744	932,420	47,934	13,865	35,128
1884	936,500	93,650	1939 (e)	5,704,250	722,310	43,518	17,842	25,550
1885	997,000	79,760	1940 (e)	5,049,585	634,859	62,796	19,485	47,736
1886	861,700	68,936	1941 (e)	6,091,187	790,876	74,935	13,686	59,867
1887	848,150	67,850	1942 (e)	5,224,634	700,474	64,454	6,896	74,904
1888	626,150	50,092	1943 (e)	3,516,566	605,327	32,426	1,598	70,253
1889	354,800	28,384	1944 (e)	3,645,354	613,994	25,324	1,294	72,704
1890	334,800	28,384	1945 (e)	2,851,475	570,028	27,307	2,795	103,055
1891	525,750	42,060	1946 (e)	3,373,025	722,061	(f) 2,616	4,872	128,050
1892	788,500	63,080	1947 (e)	3,458,628	865,255	(f) 13,118	12,056	151,768
1893	1,172,200	82,052	1948 (e)	3,584,405	1,099,073	(f) 6,572	9,556	116,465
			1949 (e)	3,198,212	993,152	(f) 6,639	5,112	75,395
			1950 (e)	2,857,946	974,493	(f) 13,525	8,243	78,550
			1951 (e)	2,342,492	(g) 918,485	(f) 25,101	16,581	125,833
			1952 (e)	2,373,553	(g) 1,032,909	(f) 47,689	19,120	119,109
			1953 (e)	3,955,188	(g) 2,074,421	(f) 120,095	34,136	70,852
			1954 (e)	3,858,956	(g) 2,248,320	(f) 59,360	80,248	55,273
			1955 (e)	3,477,249	(g) 1,935,019	(f) 79,893	37,338	80,822
			Total	400,498,282	50,463,151	1,346,837	1,692,587	2,149,359

(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.

(f) Excludes Casks (principally empty returns) previously included in this Item.

(g) Includes items for which the quantity in cub. ft. is not available.

APPENDIX 2D.

SUMMARY OF IMPORTS OF TIMBER, TANNING MATERIALS AND ESSENTIAL OILS, SINCE 1848.

Year.	Timber, Woodware, etc.	Tanning Materials.	Essential Oils.	Year.	Timber, Woodware, etc.	Tanning, Materials.	Essential Oils.
1848	£ 464	£	£	1900	£ 56,266	£ 1,416	£ 1,105
1849	....	....	....	1901	80,134	1,740	1,546
1850	189	....	....	1902	97,810	3,418	1,751
1851	3,216	....	....	1903	102,383	3,556	1,348
1852	2,479	....	....	1904	157,856	1,322	2,122
1853	790	....	....	1905	98,494	582	1,592
1854	831	....	....	1906	95,229	1,412	1,915
1855	1,464	....	....	1907	122,016	2,767	1,549
1856	1,124	....	....	1908	93,205	2,392	4,584
1857	744	....	....	1909	90,502	4,129	4,033
1858	1,528	....	....	1910	171,280	3,531	3,686
1859	690	....	....	1911	152,133	2,912	4,938
1860	2,005	....	....	1912	167,244	3,089	4,598
1861	1,459	....	....	1913	202,640	2,651	5,392
1862	1,920	....	....	1914	78,736	629	2,823
1863	1,568	....	....	1914-15	107,763	2,082	4,988
1864	894	....	....	1915-16	76,849	3,313	4,788
1865	548	....	....	1916-17	75,681	2,848	3,848
1866	1,442	....	....	1917-18	58,305	2,020	4,358
1867	1,727	....	....	1918-19	62,824	1,181	4,168
1868	1,451	....	....	1919-20	100,083	3,748	10,043
1869	1,408	....	....	1920-21	171,654	*4,899	6,106
1870	1,518	....	....	1921-22	92,448	5,865	6,577
1871	736	....	....	1922-23	109,428	6,991	4,033
1872	1,660	....	....	1923-24	133,983	2,790	3,301
1873	1,008	....	....	1924-25	161,898	2,670	4,429
1874	1,774	....	....	1925-26	144,989	5,826	4,449
1875	2,707	....	....	1926-27	162,193	8,971	4,254
1876	3,098	....	....	1927-28	183,196	9,648	6,955
1877	2,036	....	....	1928-29	241,601	6,894	4,413
1878	2,947	....	....	1929-30	197,532	10,825	3,980
1879	2,340	....	....	1930-31	76,533	4,145	3,160
1880	3,061	....	....	1831-32	164,496	4,705	3,505
1881	3,639	....	....	1932-33	197,916	4,903	3,421
1882	3,692	....	....	1933-34	183,944	4,310	3,888
1883	6,667	....	....	1934-35	211,056	4,076	5,040
1884	2,930	....	....	1935-36	228,451	5,401	3,921
1885	11,479	....	....	1936-37	257,164	5,267	4,810
1886	17,888	....	....	1937-38	270,126	4,777	6,560
1887	8,136	....	....	1938-39	254,315	3,974	7,014
1888	4,461	....	....	1939-40	259,399	6,802	23,027
1889	7,686	....	....	1940-41	249,111	3,798	32,399
1890	14,979	....	....	1941-42	283,611	15,846	33,828
1891	18,406	....	....	1942-43	163,480	6,250	47,718
1892	26,713	....	....	1943-44	149,928	7,883	68,871
1893	14,493	....	....	1944-45	148,838	9,264	75,449
1894	17,964	....	....	1945-46	†219,466	19,573	56,295
1895	47,128	....	....	1946-47	386,465	12,395	78,091
1896	5,381	....	....	1947-48	345,508	8,019	96,769
1897	164,552	....	....	1948-49	570,755	8,662	42,926
1898	55,566	....	....	1949-50	521,815	24,923	51,197
1899	45,689	....	....	1950-51	640,059	21,147	161,358
				1951-52	1,037,499	18,494	167,697
				1952-53	509,667	21,493	69,804
				1953-54	923,367	45,202	58,019
				1954-55	816,052	27,395	76,464
				Total	13,443,681	414,821	1,304,509

* This and subsequent years include tanning extracts, not previously recorded.

† This and subsequent years include values for furniture, bamboo, cane, etc., not previously included.

APPENDIX 2E.

SUMMARY OF LOG VOLUMES PRODUCED IN W.A. SINCE 1829.

Year.	* Crown Land.	Private Property.	Total.	Year.	* Crown Land.	Private Property.	Total.
	Loads.	Loads.	Loads.		Loads.	Loads.	Loads.
1829-1915— Estimated	....	....	8,147,037	1936 (c)	628,012	268,723	896,735
1916 (a) ....	....	....	465,780	1937 (c)	634,077	318,044	952,121
1917 (a) ....	....	....	429,552	1938 (c)	634,749	318,579	953,328
1918 (b) ....	....	....	163,410	1939 (c)	584,953	221,720	806,673
1919 (c) ....	....	....	467,550	1940 (c)	553,202	182,791	735,993
1920 (c) ....	....	....	681,102	1941 (c)	561,784	205,780	767,564
1921 (c) ....	....	....	726,548	1942 (c)	532,733	112,668	645,401
1922 (c) ....	....	....	1,035,251	1943 (c)	472,098	86,459	558,557
1923 (c) ....	....	....	734,087	1944 (c)	445,050	89,124	534,174
1924 (c) ....	....	....	1,026,945	1945 (c)	439,400	86,191	525,591
1925 (c) ....	....	....	1,239,503	1946 (c)	422,530	109,647	532,177
1926 (c) ....	....	....	1,477,227	1947 (c)	438,971	156,639	595,610
1927 (c) ....	....	....	1,584,874	1948 (c)	445,027	177,438	622,465
1928 (c)	855,625	466,689	1,322,314	1949 (c)	405,236	193,236	601,522
1929 (c)	645,795	221,979	867,774	1950 (c)	421,623	193,653	620,276
1930 (c)	633,083	233,072	866,155	1951 (c)	507,829	214,231	722,090
1931 (c)	376,452	242,970	619,422	1952 (c)	578,851	238,766	817,617
1932 (c)	234,857	82,319	317,176	1953 (c)	684,458	230,428	944,896
1933 (c)	263,313	49,133	312,446	1954 (c)	749,719	271,240	1,020,959
1934 (c)	425,262	126,603	551,870	1955 (c)	749,353	303,909	1,053,262
1935 (c)	549,165	229,035	778,200	Total	....	....	38,701,234

* Includes State Forests, Timber Reserves, Crown Land and Private Property (Timber Reserved).

(a) Year ended 31st December.

(b) Six months ended 30th June.

(c) Year ended 30th June.

APPENDIX 3.

TIMBER INDUSTRY REGULATION ACT, 1926-50.

Annual Report for Year ended 31st December, 1954.

The number of Mills registered under the provisions of the Act at the close of the year totalled 296 (158 Crown Lands, 138 Private Property).

The average number of persons employed on timber holdings each month throughout the year was 5,879 compared with 5,724 last year.

The District and Workmen's Inspectors made 1,348 inspections of timber holdings and investigated and reported on 907 notifiable accidents, of which four were fatal.

The number of accidents per 100 persons employed was 15.4 compared with 15.5 for last year.

The total period of incapacity as a result of accidents was 23,377 days, an average of 25.8 days per injured person (compared with 26.2 days last year).

Returns as listed hereunder have been prepared, but are not included in this report.

1. Number of notifiable accidents reported in accordance with Section 14 of the Act, according to months, and indicating the age and nationality of the injured person, the period of incapacity, and the number of cases on which the first aid outfit was used.
2. The number of accidents reported during 1954, and their classification according to location and nature of injury.
3. The number of accidents classified according to cause of accident and location of injury.
4. The number of accidents according to cause of accident and nature of injury.
5. The number of accidents classified according to the months and days of the week, on which the accident occurred.
6. The number of hours worked on the day and up to the time of injury by the person injured.
7. A return showing by months the time at which the notifiable accidents occurred.
8. A return showing the personal cause of accidents as determined by the Inspectors.

The costs to the Forests Department of administering the Timber Industry Regulation Act for the year ending 30th June, 1955, was as follows:—

	£
Salaries	1,919
Mileage and Travelling Allowances	856
Sundries	298
	<u>£3,073</u>

A. C. HARRIS,

Controlling Officer.

APPENDIX 4A.

Areas of Conifers Planted (Acres) and Total Area Established, 1954-55.

(Areas given are net areas, exclusive of firebreaks.)

Plantation.	1954-55 Planting.				Total Area Established.				Remarks.
	<i>P. radiata.</i>	<i>P. pinaster.</i>	Other Species.	Total.	<i>P. radiata.</i>	<i>P. pinaster.</i>	Other Species.	Total Area.	
Adlow—	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	
Coolilup	....	44	....	44	33	983	14	1,030	15 acres clear felled. 2 acres clear felled.
Stirling	11	1	....	12	124	971	8	1,103	
Wilcock—	....	....	....	....	....	....	....	....
Abba	3	133	....	136	3	262	....	265	
Tutunup	28	23	....	51	65	333	5	403	
Penan	41	7	....	48	674	318	19	1,011	
Alena	....	....	....	....	300	202	21	523	
Peystones	....	....	....	....	340	223	47	620	
Praking	....	....	....	....	190	87	91	368	
Midros	....	....	....	....	112	103	....	215	
Arkin	....	....	....	....	108	157	3	268	
Artagabra	....	....	....	....	28	186	....	214	
Proprietary	....	....	....	....	....	319	2	321	
Ingallup	....	....	....	....	57	16	3	76	
Limwade	79	15	2 <i>P. caribaea</i> , 2 Experimental	98	1,001	173	8	1,182	
Penaeagle	....	13	2 <i>P. caribaea</i>	15	11	413	14	438	
Penerville	....	....	2 <i>P. halepensis</i>	2	....	1,831	9	1,840	22 acres clear felled.
Penagara	....	418	7 <i>P. caribaea</i>	425	....	6,778	14	6,792	96 acres clear felled.
Penallier	....	....	....	....	....	876	....	876	8 acres clear felled.
Penaddan	....	....	....	....	....	210	....	210	
Penalup	....	45	....	45	38	1,166	25	1,229	
Penlarty	1	43	....	44	3	94	1	98	
Penarvey Weir	....	....	....	....	251	53	8	312	
Penamel	....	....	....	....	9	51	6	66	
Penng Brook	....	....	....	....	267	2	41	310	
Total	163	742	15	920	3,614	15,817	339	19,770	
Experimental Areas—									
Yanchep	....	....	....	....	....	100	....	100	
Esperance	....	11	....	11	....	282	3	285	
Narrogin :									
Peters	1	18	....	19	1	34	....	35	
Smith	....	....	....	....	3	3	....	6	
Dryandra	....	....	....	....	....	5	....	5	
Quinninup	....	....	....	....	....	....	3	3	
Mandaring	....	....	....	....	....	....	....	....
Knockline Road	1	12	....	13	2	12	....	14	
Bowelling	....	....	....	....	9	29	28	66	
Nannup	....	....	....	....	14	31	22	67	
Albany	....	....	....	....	1	4	9	14	
Total	2	41	....	43	30	500	65	595	
Foreta—									
Big Brook	....	....	....	....	....	....	20	20	
Nannup	....	....	....	....	....	....	3	3	
Manjimup	....	....	....	....	....	....	3	3	
Collie	....	....	....	....	....	....	5	5	
Donnybrook	....	....	....	....	....	....	6	6	
Total	....	....	....	....	....	....	37	37	
Grand Total	165	783	15	963	3,644	16,317	441	20,403	

APPENDIX 4B.

Plantation Age Classes in Acres in 5-year Groups as at June, 1955.

Age Group. Plantation.	Over 30 years.		25-30 years.		20-25 years.		15-20 years.		10-15 years.		5-10 years.		0-5 years.		Net Area.		Total Net Area.
	<i>Pinus radiata.</i>	<i>Pinus pinaster.</i>	<i>Pinus radiata.</i>	<i>Pinus pinaster.</i>	<i>Pinus radiata.</i>	<i>Pinus pinaster.</i>	<i>Pinus radiata.</i>	<i>Pinus pinaster.</i>	<i>Pinus radiata.</i>	<i>Pinus pinaster.</i>	<i>Pinus radiata.</i>	<i>Pinus pinaster.</i>	<i>Pinus radiata.</i>	<i>Pinus pinaster.</i>	<i>Pinus radiata.</i>	<i>Pinus pinaster.</i>	
Ludlow—																	
Coolilup	10	571	8	42	1	47	5	10	5	77	....	46	....	184	29	977	1,006 1,022
Stirling .....	....	17	2	178	80	452	28	128	2	4	....	....	....	....	112	774	
Experimental .....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	12	124	
Willcock—																	
Abba .....	....	....	....	....	....	....	....	....	....	....	....	....	3	261	3	261	264
Tutunup .....	....	....	....	....	....	....	....	....	....	....	....	....	71	326	71	326	397
Keenan .....	....	....	....	....	363	156	246	83	7	4	....	....	71	72	689	317	1,006
Greystones	58	14	218	72	1	130	25	5	6	21	14	2	13	40	335	285	620
Helena .....	....	....	260	37	....	174	40	15	....	....	....	....	....	....	300	226	526
Mudros	17	....	68	4	2	54	25	45	....	....	....	....	....	....	112	103	215
Darkan .....	....	....	78	30	29	130	....	....	....	....	....	....	....	....	107	160	267
Beraking .....	....	....	131	80	1	59	28	14	31	21	....	....	....	....	191	174	365
Portagalbra .....	....	....	....	....	....	....	26	82	2	59	....	....	46	28	187	215	
Proprietary .....	....	98	....	168	....	16	....	16	....	24	....	....	....	....	....	322	322
Mungallup	44	3	8	12	....	....	....	5	4	....	....	....	....	....	57	19	76
Grimwade .....	....	....	....	....	244	112	308	13	97	20	79	5	288	18	1,016	168	1,184
Gleneagle .....	....	....	....	....	....	....	....	....	....	....	1	52	10	376	11	428	439
Somerville .....	....	....	....	367	....	494	....	540	....	181	....	214	....	37	....	1,833	1,833
Gnangara .....	....	....	....	312	....	833	....	423	....	336	....	630	....	4,258	....	6,792	6,792
Coller .....	....	....	....	209	....	536	....	132	....	....	....	....	....	....	....	877	877
Scaddan .....	....	....	....	....	....	210	....	....	....	....	....	....	....	....	....	210	210
Myalup .....	....	....	2	379	8	329	2	71	....	....	....	44	27	363	39	1,186	1,225
McLarty .....	....	....	....	....	....	....	....	....	....	....	....	....	3	94	3	94	97
Harvey Weir .....	....	....	123	26	41	24	36	6	57	....	....	....	....	....	257	56	313
Hamel	2	42	....	2	7	1	....	8	....	....	....	....	....	....	9	53	62
Pimelia .....	....	....	21	31	244	11	2	2	....	....	....	....	....	....	267	44	311
Total	131	745	919	1,944	1,021	3,768	771	1,593	212	751	96	996	486	6,075	3,648	15,996	*19,644

- * NOTE.—1. This total does not agree precisely with that shown in Table I, due to minor discrepancies, chiefly at Ludlow.
2. Areas shown as *Pinus pinaster* include small amounts of other species.
3. The total of pine plantation is 20,493 acres, the difference between this and 19,644 acres above is made up of experimental areas and arboreta.
4. Discrepancies occur in total areas under each age class chiefly due to some areas having been clear felled and replanted.

APPENDIX 4C.

Plantation Yields, 1954-55, and Totals to June, 1955, by Plantations.

(In Loads of 50 cubic feet in the round over bark.)

	1954-1955.								Total to June, 1955. Loads.
	Area Thinned.				Area Clear Felled.		Total for Year 1954-55 Yield Loads.	Loads.	
	<i>P. radiata.</i>	<i>P. pinaster.</i>	<i>P. radiata.</i>	<i>P. pinaster.</i>	<i>P. radiata.</i>	<i>P. pinaster.</i>			
	Loads.	Loads.	Acres.	Acres.	Acres.	Acres.	Loads.	Loads.	
Coolilup .....	....	214	....	....	....	16	214	4,178
Stirling	337	45	10	....	....	2	382	
Willcock—									
Abba .....	....	....	....	....	....	....	....	....
Tutunup .....	....	....	....	....	....	....	....	....
Keenan .....	....	1,179	....	49	....	....	1,179	69
Greystones	300	16	6	1	....	....	316	....
Helena	9	4	1	1	....	....	13	....
Mudros	830	530	30	31	....	....	1,360	....
Darkan	1,364	1,236	59	50	....	....	2,600	62,114
Beraking	815	21	23	....	....	....	836	....
Portagalbra .....	....	....	....	....	....	....	....	....
Headquarters	34	8	1	....	....	....	42	....
Grimwade	2,048	....	61	....	....	....	2,048	9,039
Gleneagle	12	....	....	....	....	....	12	12
Somerville .....	....	2,761	....	191	....	22	2,761	6,885
Gnangara .....	....	2,970	....	64	....	96	2,970	6,897
Coller .....	....	1,805	....	176	....	8	1,805	5,484
Scaddan .....	....	1,152	....	75	....	....	1,152	3,170
Myalup .....	....	100	....	....	....	....	100	121
Harvey Weir	691	....	8	....	....	....	691	4,689
Hamel .....	....	....	....	....	....	....	....	2,195
Boranup .....	....	....	....	....	....	....	....	896
Pardelup .....	....	....	....	....	....	....	....	159
Pimelia	435	....	11	....	....	....	435	435
Total	6,875	12,041	210	638	....	144	18,916	110,443

In addition to the above, it is estimated that some thousands of loads of other species of pines have been marketed.