

WESTERN AUSTRALIA

1954

REPORT

on the operations of

THE FORESTS DEPARTMENT

for the

YEAR ENDED 30th JUNE, 1954

by

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CONSERVATOR OF FORESTS

PERTH:

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1954

Forests Department,

Perth, 30th September, 1954.

To the Honourable Minister for Forests.

Sir,

I have the honour to advise that I took up duties as Conservator of Forests on 19th October, 1953 and now transmit herewith my report on the operations of the Department for the year ended 30th June, 1954.

Yours faithfully,

A. C. Harris.

Conservator of Forests.

Annual Report on the Operations of the Forests Department for the Year ended 30th June, 1954

INTRODUCTION AND SUMMARY.

Sawn and hewn timber production for the year under review 1953-54 at 18,345,428 cubic feet exceeded that of any previous year since 1928. Of this total, 14,486,472 cubic feet were held in the State, approximately 2,550,000 cubic feet were exported interstate, and 1,300,000 cubic feet were exported overseas. The total exports represented 21.1 per cent.

The total value of sawn timber this year was estimated at £9,300,000, and the gross revenue reached a peak of £777,518. 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

The record total production of 18,345,428 cubic feet of sawn and hewn timber involving the cutting of over one million loads of logs in the round this year 1953-54 is thought to be nearing the limit of State Forest sustained output. At present about 26 per cent. of this comes from Private Property which has only a limited life, and about 21 per cent. of the total is exported.

My predecessors in office have drawn attention to the limitations of the State Forests to provide the timber requirements for the anticipated future population of the State and have stressed the importance of establishing pine plantations, dedicating more forest land and providing the capital necessary to protect wasting assets. In general, these views are supported.

The extremely high value of Jarrah forest to the future of a State which is relatively poorly endowed has been stressed, and recommendations have been made during the year for the dedication as State Forest of over half-a-million acres in the South. Further assessment is being carried out on which to base proposals for extra areas which are suitable either as State Forest or as local timber reserves.

During the year 128,000 acres of forest were cut over and followed up where necessary by top disposal to ensure protection of the new crop.

A temporary lull has been called in the tempo of pine planting while the economics of the land available for varying species are further investigated and the planning of areas well in advance to use Loan Moneys effectively when they become available. During the year under review 1,357 acres were planted, and about 1,000 acres per annum only are proposed for the immediate future unless first-class land for the planting of *Pinus radiata* becomes available. In any case, loan funds available limit the programme to 1,000 acres at present.

Fire control underwent considerable revision during the year following conferences of the various sections of the Staff, and a highly successful season permitted the extensive controlled burning of over a third of a million acres which had reached a stage at which controlled Spring, Winter and Autumn treatment could safely reduce the fire hazards in succeeding summers.

The gross revenue of the Department reached an all-time peak at £777,518 brought about chiefly by increased timber output and some increases in log royalties. 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 are serving as a guide to royalty revision.

As a result of a Cabinet decision during the year, arrangements have been made for the refund of a percentage of royalty 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. Seventy-three thousand, five hundred and six loads were cut during the year on land within this category.

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 is in progress. Some of the more outstanding anomalies were corrected by rises of royalty this year.

A feature of the year's operations has been the establishment of a Working Plans Office at Manjimup with field parties in the virgin areas of the far Southern region. This organisation in which Air Photo interpretation now plays a major part, is planning the development and protection of an area of nearly two million acres within which serious annual losses from fire have occurred over past decades, and over which area there has been insufficient data on which to plan sawmilling projects.

Air Photo interpretation during the year covered map compilation for 420,600 acres together with another quarter of a million acres of reconnaissance mapping, and the use of air photos was extended to field officers in a number of centres, where they are now in general use for road selection and other local problems.

Apart from planting and regenerating forests during the year, works of a capital nature included new roads built, 386 miles; new telephone lines, 19 miles; new houses and offices, 17; new vehicles and automotive units, 44, chiefly as replacement for worn out units. Electric light plants and reticulated water supplies were provided for a number of forest villages.

In the field of research attention continues to be given to technical problems arising in both Re-forestation and Afforestation, while in the field of forest economics data is being collected to enable plantations, housing and royalties to be placed on a sound basis. Studies have been made of the Forests Acts and financial structure of Forestry in other States with a view to recommending some modernisation of the Forests Act 1918-1931 to keep pace with the rapid progress of Western Australia.

Departmental policy, within the powers of the Act, has undergone considerable detailed revision during the year and may be summarised as an intensive drive upon the assessment of virgin areas to obtain a more precise figure for the permissible timber output of State Forests; an improvement in the efficiency of utilisation of the trees actually fallen, and in the use of species other than Jarrah, with a drive for increased revenue by attention to these factors; by means of Controlled Burning a reduction in fire damage to regrowth, and in severe timber losses in virgin forests of the far South; a diversion of all funds possible to developing roads in the virgin forests as a means to fire protection. The introduction of new sawmills into the region of the far South is contemplated as a means to its development and financing its protection.

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.

REVENUE AND EXPENDITURE.

Consolidated Revenue Fund Income.

For the first time in the history of the Department the gross revenue exceeded three quarters of a million pounds. This amount was almost £100,000 above the previous year's revenue which up to that time was a record.

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

	Year ended 30th June, 1953.	Year ended 30th June, 1954.
	£	£
Royalties	397,215	493,473
Rents	1,796	2,166
Sandalwood	54,276	54,541
Departmental	224,863	227,338
	£678,150	£777,518

Goldfields revenue continued to decline, decreasing to £8,107 compared with £9,079 the previous year.

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

	£
Hardwood Conversion Sales	44,402
Firewood for P.W.D. Pumping Stations	*88,302
Sale of pine logs and pine timber	78,933

Details appear in Appendix 1A.

* Includes £33,629 for firewood supplied during 1952-53.

Consolidated Revenue Fund Expenditure.

During the year the total Consolidated Revenue Fund expenditure amounted to £239,735. Compared with the previous year the allocation of the expenditure was as follows :—

	Year ended 30th June, 1953.	Year ended 30th June, 1954.
	£	£
General Administration of the Forests Acts and Regulations	79,921	90,857
Administration of the Timber Industry Regulation Act	3,003	3,082
Pine Conversion Projects	45,445	57,905
Firewood for Nos. 1 and 2 Pumping Stations	116,944	52,983
Other Hardwood Conversion Projects	28,507	34,908
	<u>£273,820</u>	<u>£239,735</u>

The reduction in expenditure on the production of firewood for Nos. 1 and Pumping Stations was due to the electrification of the pumping units during the year.

Details appear in Appendix IA.

APPORTIONMENT OF NET REVENUE OF DEPARTMENT.

	£	s.	d.	£	s.	d.
Gross Revenue for year 1953-54				777,517	15	8
Less—Revenue from Firewood, etc.				134,935	0	10
				<u>£642,582</u>	<u>14</u>	<u>10</u>
Consolidated Revenue Fund Expenditure	239,734	13	3			
Direct charge by Treasury (salaries and fees)	2,186	19	9			
	<u>241,921</u>	<u>13</u>	<u>0</u>			
Less—Expenditure on Firewood, etc.	87,890	10	8			
	<u>154,031</u>	<u>2</u>	<u>4</u>			
Less—Timber Industry Regulations						
Salaries and Incidentals	3,081	10	1	150,949	12	3
				<u>£491,633</u>	<u>2</u>	<u>7</u>
<i>Net Revenue</i>						
Three-fifths of Net Revenue credited to Reforestation Fund during the year 1953-54				<u>£294,979</u>	<u>17</u>	<u>5</u>

FORESTS IMPROVEMENT AND REFORESTATION FUND.

	£	s.	d.	£	s.	d.
Source of Funds :—						
Balance—1st July, 1953	216	10	4			
Three-fifths Net Revenue	294,979	17	5			
Treasury Grant	164,500	0	0			
Federal Aid Road Grant	45,224	16	1			
Direct Credits	7,036	13	10			
	<u>511,957</u>	<u>17</u>	<u>8</u>			
Less Expenditure :—						
General Account	455,898	13	8			
Federal Aid Road Grant	45,224	16	1	501,123	9	9
				<u>£10,834</u>	<u>7</u>	<u>11</u>
<i>Balance at 30th June, 1954</i>						

Details appear in Appendix IB.

LOAN FUNDS EXPENDITURE.

	£	s.	d.
Plantations	49,134	1	3
Housing	26,418	8	11
Administration	2,644	15	1
Total	£78,197	5	3

Details appear in Appendices IC. and ID.

GROSS EXPENDITURE.

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

	£
Consolidated Revenue Fund	239,735
Reforestation Fund including Federal Aid Roads Grant	501,123
General Loan Fund	78,197
Mining Leases Royalty Fund	198
	£819,253

THE FOREST AREA.

State Forest (Forests Act, 1918).

The area of State Forest as at 30th June, 1954, was 3,462,239 acres, an increase of 2,147 acres as compared with the acreage for the previous year. During the year additions totalling 2,378 acres were made to State Forest.

In the timber forests proper of the South West, 3,462,239 acres have been dedicated as State Forest, 87,000 acres have been declared Timber Reserve under the Forests Act, and 201,000 acres as Timber Reserve under the Land Act.

The Forests Department has recommended the dedication of an additional 411,750 acres in the extreme South-West below Nannup to Walpole. This recommendation is expected to be carried out in the coming year.

The machinery to review any dedicated State Forest has operated continuously since the passing of the Forests Act in 1918, and some pieces of State Forest found unsuitable for forest purposes or required to meet special circumstances are revoked each year following the consent of Parliament. Two hundred and thirty-one acres comprising five small areas were excised during the year and reverted to the Lands Department for alienation.

Timber Reserves (Forests Act, 1918).

The total area of timber reserves under the Forests Act as at 30th June, 1954, was 1,831,503 acres, an increase of 34,583 acres as compared with the acreage for the previous year. This was largely due to the inclusion in Reserve 126/25 of a large area for pine planting. Of this total area of timber reserves only about 60,000 acres are in the South-West and capable of producing timber. The balance is chiefly firewood forest of the inland areas.

APPLICATIONS FOR LAND.

During the period 1st July, 1953 to 30th June, 1954, the Department received either through the Lands Department or direct, 285 applications covering a total area of 782,398 acres.

Of these applications, 225 covering a total area of 171,548 acres were referred to the Forest officer in charge of the District concerned for either a detailed inspection or for additional information, before making a recommendation. Of this area applied for the Forests Department agreed to the release of 103 blocks not required for forestry purposes, totalling approximately 652,340 acres.

SAWMILLING AND HEWING.

Production of sawn timber reached a record figure of 18,345,428 cubic feet of which 4,872,055 cubic feet were from Private Property. The increase was due primarily to the stepping up of production of the larger sawmills. The production of sawn sleepers included in the above totals increased by nearly 30 per cent.

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

Approximately 749,000 loads of logs in the round were cut on Crown Lands, including 73,506 loads from Private Property with timber reserved to the Crown, to meet this production which represents slightly more than one load per capita.

An 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 is recognised.

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.

Nineteen new mills were registered during the year and 26 ceased to operate thus reducing the total to 299 as at December, 1953, of which 162 were on Crown Land and 137 on Private Property. The number of mills in itself is not a measure of timber being cut, as it is the large mills with capacity intakes of more than one million cubic feet per annum each which cut the bulk of the timber.

Departmental plantations yielded 15,861 loads of pine thinnings, of which 292 loads were used for plywood manufacture. Other species, jarrah and karri, provided 71,167 cubic feet (1,423 loads), for plywood, all of which was from State Forest.

TIMBER PRODUCTION.

Production of Timber for year ended 30th June, 1954 (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 Sq.	In Log.	In Sq.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Crown Lands	26,994,228	8,238,867	*2,250,444	37,483,539	13,472,886	2,435	487	....	....	37,485,974	13,473,373
Private Property	11,529,589	654,416	†1,373,137	13,557,142	4,871,088	4,715	943	120	24	13,561,977	4,872,055
Grand Totals	38,523,817	8,893,283	3,623,581	51,040,681	18,343,974	7,150	1,430	120	24	51,047,951	18,345,428

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 :-

988,406 cub. ft. Wandoo	793,031 cub. ft. Pine	227,892 cub. ft. Blackbutt.
132,424 cub. ft. Sheoak	60,629 cub. ft. Red Tingle	25,763 cub. ft. Tuart
14,430 cub. ft. Marri	3,783 cub. ft. Bullich	3,295 cub. ft. Yellow Tingle
791 cub. ft. Other		

†Comprises :-

932,769 cub. ft. Wandoo	161,648 cub. ft. Marri	122,833 cub. ft. Blackbutt
69,824 cub. ft. Tuart	59,272 cub. ft. Sheoak	26,239 cub. ft. Pine
552 cub. ft. Other		

In addition to the above total, 74,124 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 IS SET OUT IN THE FOLLOWING TABLE.

Year.	From Crown Lands.			From Private Property.			Total Quantity.	Estimated Value of Timber Obtained.
	Swan Timber other than Sleepers.	Sawn Sleepers.	Hewn Sleepers.	Sawn Timber other than Sleepers.	Sawn Sleepers.	Hewn Sleepers.		
1952-53	10,540,913	1,750,940	1,430	3,977,327	704,152	331	16,975,093	£ 8,162,586
1953-54	11,271,444	2,201,442	487	4,165,178	705,910	967	18,345,428	9,299,756

TIMBER INSPECTION.

The service of Timber Inspection provided for buyers by the Department has increased considerably during recent years.

Sawn sleepers inspected during the year under review amounted to 2,719,956 cubic feet, of which 669,589 cubic feet were from Private Property. Hewn sleepers inspected totalled 1,454 cubic feet only, of which 967 cubic feet were from Private Property.

Other sawn timber inspected totalled 299,638 cubic feet of which 11,034 cubic feet were from Private Property. The number of piles and poles inspected totalled 1,551 amounting to 49,679 lineal feet.

SAWN TIMBER CONSUMPTION AND DISTRIBUTION.

Of the total of 366,909 loads in the square produced during the year, 289,730 loads or 78·9 per cent. were held in Western Australia, 77,179 loads or 21·1 per cent. were sold outside the State, and of these exports approximately 51,000 loads or 13·9 per cent. of the total cut were sent to the Eastern States, and 26,000 loads or 7·2 per cent. were shipped overseas.

The production of Karri was 64,032 loads or 17·4 per cent. of the total. Of this 41,600 loads approximately were consumed in Western Australia and 22,400 loads exported outside of the State.

Sleepers sawn during the year totalled 58,176 loads, and 27,000 loads of these were used in Western Australia.

For a population of 640,000 people as at the 30th June, 1954, the per capita consumption of sawn timber other than sleepers produced in the State, without considering any imports, is a little over 240 super feet per annum which is a very high figure.

In spite of the fact that the per capita production and consumption is perhaps the highest of any State in the Commonwealth, there does not yet appear to be any sign of accumulated stocks in timber merchants' yards, although the position in regard to both green and seasoned timber has improved very considerably over the past six months. Two producers of end-matched flooring have requested permission to market some of their heavy stocks in the Eastern States because of the reduced local demand, which indicates that long length flooring is more readily available.

There appears to be no shortage of fruit cases at the present time, and some sawmillers holding case permits have been given permission to produce scantlings for a limited period because of the case stocks held and because of a greater all-round case production. There should be no difficulty in the Case Distributors' Association obtaining all the apple dump cases which will be required for the 1955 season. In fact there is already some discrimination between types of cases being offered and a tendency to go back to a completely sawn case from one with sides, tops and bottoms of sliced boards.

The market of Karri has shown considerable improvement due to the activity of the Timber Utilisation Committee and revival of trade with New Zealand, while Jarrah is still in strong demand, not only in Western Australia, but in the Eastern States and overseas.

FIREWOOD PRODUCTION AND CONSUMPTION.

Firewood production for the State was estimated at 900,000 tons, over half of which was used for industrial and mining fuel. The Forests Department continued to supply wood directly to No. 1 and No. 2 G.W.S. Pumping Stations, but since these pumps have been electrified the demand for wood has fallen off. It is interesting to note, however, that sawdust is being used as fuel by some industrial concerns and sawmills. During the year it was estimated that 58,126 tons of sawdust were consumed.

FIREWOOD STATEMENT, 1953-54.

	Crown Land. tons.	Private Property. tons.	Total. tons.
1. Production for the State—			
(a) Domestic Firewood—			
Firewood Permits (South-West)	40,954	497	41,451
Mill waste sold as firewood (Est. 50% of total)	36,348	24,758	61,106
Domestic use on Goldfields	21,659	....	21,659
Total Domestic Firewood as shown by returns received	98,961	25,255	124,216
(b) Industrial Firewood :			
Nos. 1 and 2 Pumps ....	....	....	....
Direct supply by Forests Department	13,539	....	13,539
Supplied by Petty Contractors	2,167	....	2,167
Supplied under License Nos. 3 to 8 Pumps	43,413	....	43,413
Other pumps	1,281	....	1,281
Factories, etc.	47,162	....	47,162
Mill waste sold as firewood (Estimated 50% total)	36,348	24,758	61,106
Mill waste used as firewood	114,419	8,788	123,207
Total Industrial Firewood as shown by returns received	258,329	33,546	291,875
(c) Mining Firewood :			
Total Firewood produced as shown by returns received	77,304	....	77,304
Total Firewood produced as shown by returns received	434,594	58,801	493,395

2. Consumption—

Estimated Domestic	....	....	....	....	330,014	(at 2 tons per dwelling).
Industrial	....	....	....	....	429,556	(ex Govt. Statistician).
Pumping Stations	....	....	....	....	60,400	(as per F.D. Returns).
Mining	....	....	....	....	77,304	(as per F.D. Returns).
Total	....	....	....	....	897,274	tons.

Approximately 48 per cent. of the Firewood consumed was supplied from Crown Lands.

The decrease in the production and consumption of firewood during the past 12 months is attributable to the Mundaring Pumps switching to electricity and the Goldfields Mines using coal.

SANDALWOOD.

Although at times the Sandalwood stock position at Fremantle appeared to be getting very low, particularly in regard to the bigger sized logs required for the Hong Kong market, all export orders were met.

Owing to the accumulated stocks of Sandalwood oil, no Sandalwood roots and butts severed from the logwood, were delivered to oil distillers from August, 1953, to April, 1954, inclusive.

Many of these roots and butts, however, were ground to dust and a total quantity of 25½ tons was sold on the export market in this form.

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)	331
Pieces	5
Private Property :	
Nil	....
	336

Thirty tons of roots and butts severed from the logwood were delivered to distillers for oil distillation purposes.

The total quantity of Sandalwood exported during the year was 398 tons as compared with 400 tons for the previous year.

Two thousand, nine hundred and seventy-six pounds of Sandalwood oil were produced by local distillers during the year and 6,600 lb. were exported out of the State.

FOREST PRODUCE.

Piles and poles totalling 306,591 lineal feet showing considerable increase on previous years were obtained from Crown Lands, of which 49,171 lineal feet were supplied by Departmental cutting. Records available show that nearly 475,000 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.

Over a quarter 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, 138 tons of Mallet Bark were sold, of which 78 tons came from plantation thinnings. Six hundred and forty-three tons came from Private Property. Wandoo logs used for the preparation of tannin extract totalled 74,124 tons, 17,150 tons from Crown Lands and 56,974 tons from Private Property.

Mining timber, apart from that supplied by sawmills, reached approximately 39,000 tons, four-fifths 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 nearly 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 £2,000,000.

FOREST PRODUCE NOT ELSEWHERE INCLUDED IN PRODUCTION TABLES.
OBTAINED DURING YEAR ENDED 30th JUNE, 1954.

Description of Forest Produce.	South-West Division and Agricultural Areas.			Northern Central and Eastern Goldfields.	Total.
	Supplied by Department.	Other Crown Lands.	Private Property.*	Crown Lands.	
Mining Timber Tons	303	11,283	8,634	18,353	38,573 tons.
Sleepers for Goldfields Wood Lines cub. ft.	....	....	....	2,627	2,627 cub. ft.
Charcoal (includes 9,601 tons ex Wundowie) Tons	....	116	9,601	....	9,717 tons.
Piles and Poles Lin. ft.	49,171	257,420	474,094	....	780,685 lin. ft.
Fencing Posts and Rails No.	12,743	167,053	22,455	78,786	281,037 No.
Mallet Bark (includes 78 tons thinning) Tons	78	60	643	....	781 tons.
Wandoo Timber for Tannin Extract Tons	....	17,150	56,974	....	74,124 tons.
Bean, etc., Sticks No.	....	800	....	3,700	4,500 No.
Boat Knees No.	....	150	....	....	150 No.
Stone cub. yds.	....	4,678	....	....	4,678 Cub. yds.
Sand cub. yds.	....	72	....	....	72 Cub. yds.
Sawdust consumed as fuel† Tons	....	....	....	....	58,216 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.

FOREST MANAGEMENT AND WORKING PLANS.

Forest management is, of course, practised by all field officers throughout the State and the results of their work in Divisions is largely summarised in the various paragraphs dealing with works.

On the more specialised side of the Working Plans an important development has been the rapid establishment of a Headquarters in Manjimup to control and co-ordinate the work of a number of field parties on assessment. This office, established in January, has made excellent progress, combining air photogrammetry with field operations and has already built up preliminary data for working plans and sawmill projects for over half a million acres. In connections with this work a total of 338 miles of assessment lines were run between January and June on a more up-to-date basis than previous assessments, following the introduction of a new form of field book and the schooling of assessors to record all possible information in the course of the one field operation.

The Head Office section dealing with working plans has covered during the year :—

Forest type mapping as an initial work or a first revision 420,600 acres,
which, added to the work of previous years, gives a total area of type mapping of 2,255,000 acres.

In addition to the main work of type mapping the forest a number of sundry jobs were carried out to cover reconnaissance, road selection and plantation assessments. These works may be summarised as :—

Wandoo forest 143,000 acres.
Marginal forest reconnaissance 14,000 acres.

Plantation mosaics were supplied to those plantations in need of them and a number of uncontrolled mosaics were laid down for inspection to determine the positioning of assessment lines in the field.

The use of air photo interpretation has become of increasing importance and has been developed by officers of this Department on a practical basis to a stage where it forms one of the most important aids to the forester in designing and organising the economic development and management of State forests. The work is also proving of high value in the solution of other problems such as data for the State Land Utilisation Committee and Land Settlement authorities and for decisions relating to the use of timber from private property reserved to the Crown where the scattered nature of the areas would make it virtually impossible for a normal staff to cover the ground without the aid of maps based upon photo study.

Revision of working plans for both indigenous forests and pine and mallet plantations are in progress.

Work has been handicapped through lack of sufficient photos of the correct scale and through lack of both staff and working space, although the Department is reasonably well equipped with instruments.

REFORESTATION.

The total area of Jarrah, Karri and Wandoo on Crown Land and State Forest cut over during the year amounted to approximately 128,000 acres. About half of this area was treemarked in accordance with our silvicultural practice and working plan control to ensure regeneration and perpetual yield. The balance, being mostly outside State Forest, was cut under other forms of control. Cutting on State Forest was followed by top disposal work where necessary for the protection of the immature growing stock remaining. A total of approximately 38,091 acres received this treatment. There are now approximately 1,975,000 acres regenerated. In addition approximately 24,000 acres of Private Property on which timber is reserved to the Crown was cut over.

Management and protection is being extended into areas in the far South-West on which new mills are operating.

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 13,603 miles by the addition of 386 miles. Maintenance grading covered 2,901 miles.

Main Forest Divisions.

Division.	Construction Miles.	Maintenance Grading Miles.
Mundaring	83	237
Dwellingup	24	316
Collie	1	296
Kirup	25	770
Manjimup	78	479
Gleneagle	34	19
Narrogin	1	93
Harvey	2	397
Pemberton	110	294
Busselton	28	....
	<hr/> 386	<hr/> 2,901

In addition, about 130 miles of grading were carried out within plantations, and the Department undertook construction of several roads for the Main Roads Department, for which Federal Aid Road Grant money was made available.

AFFORESTATION.

Pine Plantations.

The total net area of pine plantations is now 18,994 acres, plus 590 acres sundry arboreta. The gross area, including internal firebreaks, is approximately 33,500 acres.

During the year under review, 1,357 acres (net) were planted, and some 4,300 acres remain part cleared for future planting.

A revision of pine planting policy is in process, as results have shown that many areas of unsuitable soil have been planted in the past, and soil studies are proceeding. For the next year or two a restricted programme of about 1,000 acres per annum is anticipated, which in any case is likely to be governed by Loan Moneys available.

Net areas planted at the various plantations this year were as follows :—

	Acres.
Gnangara	941
Gleneagle	110
Grimwade	32
Keenan	23
Ludlow	2
McLarty	40
Myalup	93
Mundaring	3
Willcock	113
Somerville	....
Total	<hr/> 1,357

Mallet.

The Mallet plantations now total 18,227 acres. One hundred and sixty-eight acres were sown and 130 acres clear felled during the year. No large extensions of these plantations are envisaged.

In the course of thinning, 78 tons of bark were produced, and mining timber was cut for the Murchison Goldfields, totalling 9,079 cubic feet, most of which was lagging poles.

A total of 781 tons of bark was produced for the State, most of which came from Private Property.

PRODUCTION OF PINE LOGS.

The total production of pine logs from Departmental Pine Plantations was 15,861 loads, which was obtained chiefly from first thinnings on approximately 812 acres as shown in the following table.

Plantation.	Area.	Loads.	
		Total.	Per acre.
Collier	133.3	1,530	11.4
Gnangara	101.8	1,112	10.9
Grimwade	60.0	1,950	32.5
Hamel	Odd trees	2	....
Harvey Weir	19.0	1,542*
Keenan	51.0	1,470	29.0
Ludlow	11.2	562*
Mundaring Weir	212.3	4,421	20.8
Myalup	Odd trees	9	....
Scaddan	69.25	956	13.8
Somerville	154.5	2,307	14.3
	812.35	15,861	....

* This includes some clear felling.

Of this total, 4,356 loads were milled at Departmental centres and the balance of 11,505 loads sold chiefly to case-making firms. Two hundred and ninety-two loads of logs were supplied for peeling for plywood manufacture, and the Department disposed of by sale 134 loads of processed pine mouldings, etc. from its processing plant at Ludlow.

HOUSING.

Forest protection and management depends largely on the establishment of resident workers and the development of roads and tracks. During the War years and until 1950, little progress was made. Of recent years, houses have been established as follows :—

1948-49	....	....	....	....	20
1949-50	....	....	....	....	38
1950-51	....	....	....	....	28
1951-52	....	....	....	....	47
1952-53	....	....	....	....	32
1953-54	....	....	....	....	15

The houses completed in the current year were mostly under construction in the year 1952-53, and the loan money available for the current year was insufficient to continue the planned programme.

FOREST PROTECTION AND FIRE CONTROL.

An area of 2,312,000 acres was afforded either intensive or partial protection, and following on a revision of Departmental controlled burning policy, satisfactory controlled burns, particularly autumn and winter burns, were reported from most Divisions, and a total of 1,148 miles of breaks were burned together with 218,906 acres of prescribed controlled burning and 198,015 acres of top disposal and burning in advance of sawmilling.

This is an increase on last year, but due to the late rains in September, October and November, spring burning was curtailed to some extent.

One new lookout tower was brought into operation during the year, and the foundations laid for another. In addition, site selection for two more lookouts in the extreme south was carried out.

The first fire outbreak of the season was recorded on 1st November at Kirup, while the last fire outbreak of the season occurred at Narrogin on 21st April, 1954.

The total number of fires attended by Departmental gangs during the year under review was 324 as compared with 289 for the previous year, and a total of 12,500 acres of the intensively protected forest was burnt over, mostly very lightly.

Causes of fires were as follows :—

W.A.G.R. Locos.	....	....	....	....	....	....	12
Bush Locos.	....	....	....	....	....	....	37
Escapes from Control Burns	....	....	....	....	....	....	23
Bush Workers	....	....	....	....	....	....	18
Bush Navvies	....	....	....	....	....	....	2
Hunters and Fishers	....	....	....	....	....	....	30
Householders	....	....	....	....	....	....	18
On and from private property	....	....	....	....	....	....	38
Travellers	....	....	....	....	....	....	30
Lightning	....	....	....	....	....	....	34
Deliberately lit	....	....	....	....	....	....	21
Children	....	....	....	....	....	....	9
Mill Surroundings	....	....	....	....	....	....	12
Mine Surroundings	....	....	....	....	....	....	2
Other Government Employees	....	....	....	....	....	....	16
Stockmen	....	....	....	....	....	....	3
Tractors	....	....	....	....	....	....	2
Unknown	....	....	....	....	....	....	17
TOTAL	....	....	....	....	....	....	324

The greatest individual cause of fires was escapes from Private Property totalling 38, closely followed by Bush Locos. which accounted for 37 fires. The number of fires caused by Bush Locos. is much too high, particularly in view of the close supervision of spark arrester mechanism, but the number of fires believed to have been deliberately lit has decreased markedly.

Another interesting cause was lightning, with 34 fires, of which 28 were from the storm on the night of the 10-11th January, 1954, but thanks to the vigilance and high sense of duty of one towerman in particular who alerted neighbouring towers during the night these fires were quickly brought under control.

Owing to the mildness of the season, fewer calls were made on members of the timber industry, but whenever assistance was required, it was readily forthcoming without question, and this assistance is greatly appreciated, while continued and increasing co-operation with bush fire brigades and Private Property owners was a feature of the year.

The Department continued the practice of burning protective strips round isolated schools, halls, and mill villages.

COMMUNICATIONS.

Nineteen miles of new telephone lines were built chiefly in the Busselton and Kirup Divisions, bringing the total length of line to 1,556 miles. Good progress has been made with the re-installation of new telephone switchboards and associated wiring. Forty switchboards were made up and installed this year. This work is proceeding.

The radio equipment functioned well during the past fire season. A prototype transmitter and receiver is being developed. New fixed station aerial system and equipment layouts have been installed at Margaret River and Kirup.

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 1953, of 47,241 trees to local authorities and private persons. The Kalgoorlie Nursery, which raises trees for use in the low rainfall inland areas, distributed 12,329 plants for the calendar year 1953, the plants being disposed of chiefly between May and August. One hundred and twenty-eight different species were available for sale.

Stain and Mould in Pine.

Development of blue stain in the log for various periods after felling is being investigated. Detailed formulae have been prepared for preventive treatment of sawn pine and advice given on dipping installations.

Nutrition.

Sample plot work in pine plantations has been continued and some trials made with fertilisers and 2.4.D. compounds in disordered Jarrah and in Mallet.

Seed Source and Strain.

An investigation into a twisting disorder associated with an infestation of Chermes in *P. pinaster* has indicated that the trouble occurs with trees from locally produced seed, but the trees grown from seed imported from Portugal appear to be free. Some confusing factors are present, but pending further work, it has been decided to discontinue collection of local seed. In the meantime it is hoped to establish at Yanchep a small plantation of pure Portuguese strain free from the possibility of cross fertilisation by pollen drift from mixed plantations.

Black Cockatoos.

The problem of pedigree seed collection will still be complicated by the depredations of the Black Cockatoo. As a method of scaring the bird, a carbide cannon has been tried. Unless used in conjunction with rifle shooting, the cannon is ineffective, and, although some success has been achieved over a radius of four chains to 10 chains, there is no residual effect. The method is expensive and of doubtful value.

Mistletoe.

Successful killing of Mistletoe on Marri, Tuart and Red-Flowering Gum has been achieved by using 0.3 per cent. 2.4.D. ethyl ester spray.

Weedicide.

2.4.5.T. plus 2.4.D. was successfully used to eradicate Paterson's Curse and Blackboys, and sodium tri-chloroacetate appears to have been successful in *Watsonia* eradication.

Coppice Eradication.

Some success has been achieved in our long-term experiments, but further work has yet to be done.

Silverculture.

Work under this heading has been concentrated in the Jarrah forests, and covers investigations into the growth, developments and stocking of second growth Jarrah in its relation to sustained yield management.

Studies on the effect of severe fires on growth and anatomy of the tree are being continued.

Forest Litter Studies.

Records of litter fall have been maintained with the following results for the Jarrah forest :—

Forest Type.	Crown Cover.	Cwt./Acre.		
		1951.	1952.	1953.
Virgin Forest	56%	36.6	39.2	39.4
Pole Forest	47%	47.1	53.3	60.2
Sapling Forest	35%	41.4	40.9	52.2

In an extension of this work it was shown that after 20 years' protection from fire six and a half tons of litter per acre had accumulated on the forest floor.

Chemical analysis of this litter has shown a marked accumulation of calcium and nitrogen (112 lb. and 116 lb. per acre, respectively), and a paucity of phosphorus (2.5 lb. per acre.)

Work on the disintegration of litter has continued and shows that 30 per cent. of the oven-dry weight is returned to the soil in the first 12 months (mainly in the winter period), but subsequent decomposition is at a much slower rate.

A paper was prepared for the Soil Science Conference at Adelaide (1953) on "The Effect of litter decomposition on Soil Properties in the Jarrah Forest" by the Research officer and now awaits publication.

Effect of Fire on Forest Soils.

A preliminary study of regularly burnt firebreaks and long protected compartments has indicated that there is virtually no difference in the level of organic matter (as measured by organic carbon and nitrogen.)

There is a slight rise of pH value (0.2 units) immediately after the burn on the firebreak, but this disappeared after the winter rains. In addition, there was no evidence of physical deterioration of the soil structure on the firebreak due to controlled burning operations.

Further experiments are being continued into the effect of more severe fires on soil composition. To date it appears that with fire temperatures of 800 degrees to 900 degrees Centigrade (slash heaps) the pH is raised from 6.3 to 8.5, organic carbon is reduced from 2.5 per cent. to 1.8 per cent., nitrogen is halved and there is a tenfold increase in specific conductivity.

Soil Fauna and Soil Bacteria.

As a parallel study to effect of fire on soils, the effect on the populations of soil fauna and bacteria was inaugurated, but was later abandoned owing to shortage of staff. The preliminary work has been recorded in a paper "A Preliminary note on the micro-fauna of the Jarrah forest" which awaits publication.

Fire Weather Research.

Records are being maintained for a correlation of the effects of controlled burning and prevailing weather conditions.

Further work was carried out on the weathering of pine fire weather sticks in conjunction with the Woods and Forests Department of South Australia.

Library.

The appointment of a qualified librarian has considerably improved the service available from the Departmental Library. The demand for information is increasing with the increase in field staff and a commencement will be made to classify the Library under the Oxford System of Decimal Classification for Forestry to provide a more speedy and efficient method of locating all information on a specific subject.

CONFERENCES, EDUCATION AND PUBLICITY.

Following an initial policy conference of Senior officers from 30th November to 4th December, a District officers and Senior officers' Conference was held at Busselton on the 17th and 18th June.

Schools were held for Forest Assistants at Perth on 25th and 26th May, and for Assistant Divisional Forest Officers at Dwellingup on 27th and 28th May, and for Forest Trainees and Assistant Foresters at Ludlow from 1st to 18th June.

In the early part of the year a school for Fallers was conducted at Margaret River from September 8th to October 29th.

In addition to the above a number of fire schools were held for Assistant Foresters, Overseers and Power Pump Operators, and a school of Fire Tactics for senior officers was also conducted.

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

1. *National Flower Day* on the 11th September. A typical bush scene with wildflowers was shown in Cathedral Avenue, and this was awarded Third Prize for outside displays.
2. *Wild Life Show*, 14th to 19th September. An exhibit showing the forest before and after a bush fire was displayed in the Perth Town Hall, and the Department provided projector, films and operator for Educational purposes.
3. *Wildflower Show*, 24th to 25th September. The main Departmental exhibit in the Perth Town Hall was of flowering eucalypts and these attracted considerable attention. Exhibits of protected flowers and plants were also shown.
4. *Australian Inland Mission*, 22nd to 25th September. The Department prepared an educational exhibit at Kalgoorlie on pine products, eucalypts and the importance of pigments in plant physiology. The Sirex Wood Wasp was also featured.

Throughout the year the Department was represented at a number of conferences some of the more important being :—

- Timber Conference, Rotorua.
- Fire Control Conference, Canberra.
- Heads of Forest Services, Canberra.
- Board of Higher Forestry Education, Canberra.
- Decennium of Institute of Foresters, Canberra.

Regional Superintendent Wallace visited Mt. Burr to discuss mutual fire weather forecasting problems with South Australian officers.

Assistant Divisional Forest Officer Beggs completed a six months' study of Forest Utilisation at the Division of Forest Products of the C.S.I.R.O., and Assistant Divisional Forest Officer Hatch is at present attending a Meteorology school at Melbourne.

EMPLOYMENT IN FORESTRY.

The number of wage earners directly employed in the forest has been estimated at approximately 7,574, made up of:—

Firewood cutters, pole getters, etc., on permits	....	....	340
Sandalwood getters	....	....	20
Goldfields firewood cutters, contractors, and wood-line employees, and carters	....	....	332
Direct employees of the Forests Department:			
Head Office	....	....	66
Field Staff	....	....	106
Wages employees (average for 12 months)	....	....	454
Contractors and employees	....	....	100
			726
Sawmill employees including bush workers at 30th June, 1954*	....	....	6,051
Apiarists, estimated (126 sites are registered)	....	....	105
			7,574

* Includes employees of all registered sawmills.

FOREST OFFENCES.

Seventy-four offences were reported to Head Office during the year. In three cases proceedings were taken against offenders. Fines totalling £25 and costs of 19s. were inflicted.

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

The amount received by the Department in this way totalled £438 11s. 5d.

STAFF.

Dr. T. N. Stoate was awarded the degree of Doctor of Science of the Adelaide University during the year. His term of appointment as Conservator of Forests expired at the end of January, 1953, and after the change in administration as from the 19th October, 1953, he was engaged in writing a report on the research work of the Department. He commenced annual and long service leave on the 16th February, 1954, prior to retirement.

Officers employed under the Public Service Act were reclassified as from 1st January, 1954, and substantial but long overdue increases were granted to senior officers in the Professional and Clerical Divisions.

Officers of the Field Staff, General Division employed under the Forests Act were also reclassified with substantial increases as from the 1st January, 1954. The Agreement between the Civil Service Association of Western Australia (incorporated) and the Conservator together with the resultant reclassification, were published in the Government Gazette of the 25th June, 1954.

Four new appointments were made to the Professional Division, and six to the General Division in which list three had retired, but with the expanding developments in the Far South of the State further appointments are to be expected.

I desire to place on record appreciation of the active co-operation and loyal support of all members both field and office staffs during the year.

A. C. HARRIS,

Conservator of Forests.

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APPENDIX 1A.

CONSOLIDATED REVENUE FUND.

Consolidated Statement of Revenue and Expenditure for 1953-54.

TO REVENUE :				BY EXPENDITURE :			
Territorial :—				Salaries 76,835 8 9			
<i>Timber—</i>				Incidentals 15,837 1 2			
	£	s.	d.	Timber Industry Regulations (Incidentals) 1,266 13 8			
Log Royalties	403,210	3	5	Pine Conversion 57,904 19 0			
Sleeper Royalties	32,549	7	8	Direct Conversion—			
Saw Timber Royalties	4,314	18	1	Firewood for Pumping Stations 52,983 1 2			
Miscellaneous Royalties	22,811	8	2	Other Hardwood Conversion Projects 34,907 9 6			
Direct Conversion Royalties	22,479	14	4	<hr/>			
Goldfields Revenue	8,107	4	9	87,890 10 8			
Rents and Leases	2,165	17	2	Excess of Revenue over Expenditure 537,783 2 5			
			495,638 13 7				
<i>Sandalwood</i>			54,540 19 8				
Departmental :—							
Inspection Fees	5,667	4	2				
Miscellaneous Sales	3,537	19	7				
Firewood for Pumping Stations	88,301	19	8				
Hardwood Conversion Sales	44,401	11	0				
Pine Conversion Sales	78,932	14	1				
Miscellaneous Receipts	6,496	13	11				
			227,338 2 5				
			<hr/>				
			£777,517 15 8				
				<hr/>			
				£777,517 15 8			

APPENDIX 1C.

Statement of Afforestation Expenditure for year ended 30th June, 1954.

To Division 7—				By General Loan Fund	51,788	16	4
Administration	2,206	6	8	By Cash Orders Outstanding	380	18	3
Narrogin (Mallet Plantations)	8,187	13	11				
			10,394				0 7
„ Division 9—							
Administration	5,234	15	4				
Gnangara	20,071	12	7				
			25,306				7 11
„ Division 10—							
Administration—							
Harvey Weir	893	6	11				
Myalup	938	4	5				
Harvey Weir	379	1	4				
McLarty	2,687	10	4				
Myalup	7,110	7	10				
			12,008				10 10
„ Salaries—Head Office			2,644				15 1
„ Workers' Compensation Premiums					812	16	4
„ Pay Roll Tax					993	3	10
			£52,159				14 7
					£52,159		14 7

APPENDIX 1D.

Statement of General Loan Fund Housing for the year ended 30th June, 1954.

To Division 1—				By General Loan Fund	26,418	8	11
Keenan	31	6	8				
Ludlow	726	3	5				
Willcock	1,143	19	3				
			1,901				9 4
„ Division 3—							
Dwellingup			3,042				8 7
„ Division 4—							
Collie			3,726				10 5
„ Division 5—							
Kirup			883				16 11
„ Division 6—							
Manjimup			6,347				0 9
„ Division 9—							
Gnangara			1,019				10 2
„ Division 10—							
Harvey			2,381				18 1
„ Division 11—							
Pemberton			6,942				2 0
„ Kalgoothie			173				12 8
			£26,418				8 11
					£26,418		8 11

APPENDIX 2A—continued.

Exports* of Timber, Tanning Substances and Essential Oils during the Year ended 30th June, 1954.

Item and Country of Origin.	Quantity.	Value.	Item and Country of Origin	Quantity.	Value.
WOOD MANUFACTURES—continued.			ESSENTIAL OILS—continued.		
<i>Articles of Wood (Except Furniture), N.E.I.—</i>			<i>Citrus Oils—</i>		
Commonwealth States :	£	No.	Commonwealth States :	lb.	£
New South Wales	338		New South Wales	94	112
Victoria	1,395		Victoria	4,236	5,466
South Australia	369		Queensland	224	313
Northern Territory	1,458		South Australia	123	217
		3,560		4,677	6,108
United Kingdom		20	<i>Essential Oils—Other, N.E.I.—</i>		
Christmas Island (Indian Ocean)		82	Commonwealth States :	lb.	£
Cocos Islands		134	New South Wales	7,371	7,303
Malaya, Federation of		269	Victoria	5,494	7,797
Gilbert and Ellice Islands Colony		13	Queensland	124	267
Singapore		647	South Australia	113	254
		4,725		13,102	15,621
<i>Furniture—</i>			United Kingdom	39,644	13,294
Commonwealth States :	£		Canada	1,584	1,822
New South Wales	630		Uganda Protectorate	107	53
Victoria	214		Hong Kong	1,834	2,953
South Australia	533		Malaya, Federation of	56	143
Northern Territory	6,043		New Zealand	224	182
		7,420	Singapore	1,164	2,096
United Kingdom		503	South Africa, Union of	2,538	1,265
Christmas Island (Indian Ocean)		172	Cuba	343	692
Cocos Islands		174	Germany (Western Zone)	365	23
Siam (Thailand)		139	Japan	190	250
		8,408	Netherlands	1,024	1,035
Total—Wood Manufactures		59,360	Siam (Thailand)	300	112
Total—Wicker, Timber and Wood Manufactures		2,308,047		62,388	39,541
			Total—All Essential Oils		
					55,273
ESSENTIAL OILS.			TANNING SUBSTANCES.		
<i>Eucalyptus—</i>			<i>Tanning Bark—</i>		
Commonwealth States :	lb.	£	Commonwealth States :	Cwt.	£
New South Wales	84,289	5,323	New South Wales	1,197	2,803
Victoria	38,391	2,726	Victoria	14,755	31,820
			Ceylon		
United Kingdom			Germany (Western Zone)		
South Africa, Union of				15,952	34,623
Philippines Republic				19	109
	122,680	8,049		2,400	6,063
	14,564	1,133		18,371	40,786
	427	131	<i>Tanning Extracts—</i>		
	616	306	(Information not available for Publication)		
	138,287	9,624	<i>Other Tanning Substances—</i>		
			United States of America		
			Total—Tanning Substances (excluding Tanning Extracts)		
			Total Value of All Exports shown on this Return		
					2,443,563

NOTE.—*Exports to Commonwealth States are of Western Australian origin and Overseas Exports are of Australian Origin.

APPENDIX 2B.

Imports of Timber, Tanning Substances and Essential Oils during the Year ended 30th June, 1954.

Item and Country of Origin†	Quantity.	£	Item and Country of Origin.†	Quantity.	£
<i>Wicker, Bamboo and Cane and all manufactures of N.E.I.—</i>					
Commonwealth States :		£			
New South Wales	513				
Victoria	355				
Queensland	12				
South Australia	40				
United Kingdom		920			
Hong Kong		3			
Malaya, Federation of		773			
Fiji		7,734			
Singapore		2			
China		3			
Indonesia, Republic of		1,034			
		9,854			
		20,813			
TIMBER.					
<i>Logs—Not Sawed (including Hewn or squared with the Axe)—Softwood and Hardwood :</i>					
Borneo (British)	cub. ft.	£			
Dominican Republic	248,246	62,540			
	2	139			
	248,248	62,688			
<i>Undressed, N.E.I.—Hickory—</i>					
United States of America	2,168	3,356			
<i>Other Undressed Timber, including Beams, Baulks, Half Logs and Flitches—In sizes 7 inches x 2½ inches (or the equivalent) and over—Softwood—</i>					
Commonwealth States :	Cub. ft.	£			
New South Wales	2,623	4,025			
Victoria	6,099	6,776			
Queensland	4,081	4,394			
South Australia	23,544	25,771			
	36,347	40,966			
Brazil	9,556	5,538			
Borneo (British)	2,157	1,379			
Indonesia, Republic of	1,268	738			
Sweden	1,577	1,052			
United States of America	2,614	2,446			
	53,519	52,119			
<i>Other Undressed Timber, including Beams, Baulks, Half Logs and Flitches—In sizes 7 inches x 2½ inches (or the equivalent) and over—Hardwood—</i>					
Commonwealth States :	Cub. ft.	£			
Queensland	10,792	11,981			
Tasmania	2,202	1,443			
	12,994	13,424			
Borneo (British)	2,569	1,485			
Malaya, Federation of	111	86			
	15,674	14,995			
<i>Other Undressed Timber including Beams, Baulks, Half Logs and Flitches—In sizes under 7 inches x 2½ inches (or the equivalent)—Softwood—</i>					
Commonwealth States :	Cub. ft.	£			
New South Wales	159	254			
Victoria	4,028	4,607			
Queensland	17,392	16,360			
South Australia	6,049	8,082			
	27,628	29,303			
Borneo (British)	25,135	17,887			
Brazil	25,094	13,740			
Indonesia, Republic of	6,592	3,884			
United States of America	9,725	8,172			
	94,174	72,986			
<i>Other Undressed Timber, including Beams, baulks, Half Logs and Flitches—In sizes under 7 inches x 2½ inches (or the equivalent)—Hardwood—</i>					
Commonwealth States :	Cub. ft.	£			
New South Wales	561	550			
Victoria	885	719			
Queensland	43,064	43,986			
South Australia	1,014	1,188			
Tasmania	45,531	29,303			
	91,055	75,746			
Borneo (British)	42,301	24,713			
Malaya	10,722	7,207			
	144,078	107,666			
<i>Veneers—</i>					
Commonwealth States :	Sq. ft.	£			
New South Wales	923,267	24,480			
Victoria	121,706	5,004			
Queensland	357,156	4,249			
	1,402,129	33,733			
United Kingdom	83,517	2,014			
	1,485,646	35,747			
<i>Plywood, Veneered or Otherwise Including Plywood Door Panels—</i>					
Commonwealth States :	Sq. ft.	£			
New South Wales	191,371	10,807			
Victoria	34,011	1,594			
Queensland	1,968,866	87,003			
	2,194,248	99,404			
<i>Laths—</i>					
Commonwealth States :					
New South Wales		11,020			
<i>Mouldings—</i>					
Commonwealth States :	Lin. ft.	£	Lin. ft.		
New South Wales	149,551	2,742			
Victoria	1,287,391	10,252			
Queensland	70,491	1,293			
South Australia	2,500	29			
	1,509,933	14,316			
<i>Shocks—Cask and Vat—</i>					
Commonwealth States :	No.		No.		
Victoria	100	802			
Commonwealth of Australia*	307	2,303			
	407	2,605			
<i>Timber Cut to Size for making Boxes—</i>					
Commonwealth States :	Cub. ft.	£	Cub. ft.		
Victoria	9,227	8,057			
South Australia	2,754	2,696			
	11,981	10,663			
Malaya, Federation of		3,722			1,713
New Zealand		15,245			11,051
Netherlands		66			236
Portugal		19,455			10,911
Sweden		1,667			3,800
	52,136	38,374			
<i>Timber, Tongued or Grooved or Tongued and Grooved : Weatherboards—</i>					
Sweden			21,739		15,920
<i>Blockboard (also known as Corestock)—</i>					
Commonwealth States :					
New South Wales		92			
Queensland		1,261			
South Australia		128			
		1,481			
<i>Timber, Bent or Cut into Shape, Dressed or Partly Dressed, N.E.I.—</i>					
Commonwealth States :			Cub. ft.		
New South Wales			157		234
France					1
			157		235
<i>Timber, Dressed or Moulded, N.E.I.—</i>					
Commonwealth States :					
Queensland			202		261
United Kingdom			129		403
			331		664
Total—Timber Imports					533,585
Total—Wicker, bamboo and Timber					553,895
			£		
			WOOD MANUFACTURERS.		
<i>Bobbins, Cores, Reels, Spools and the like (wooden) as used in the Spinning and Weaving Industries—</i>					
Commonwealth States :	No.		No.		
Victoria	1,007	390			
United Kingdom	1,513	103			
	2,520	493			
<i>Brushmakers' Woodware and Turnery except Broom Stocks—</i>					
Commonwealth States :		£			
New South Wales		509			
Victoria		1,065			
Queensland		500			
South Australia		4,761			
Tasmania		1,725			
		8,563			
<i>Casks and Vats—</i>					
Commonwealth States :	No.	£	No.		
New South Wales	229	1,164			
Victoria	1,849	15,262			
Queensland	164	870			
South Australia	5,184	26,118			
Tasmania	29	164			
Northern Territory	6	64			
	7,461	43,642			
Commonwealth of Australia*	294	1,409			
United Kingdom	8	60			
	7,763	45,111			
<i>Clothes Pegs of any material—</i>					
Commonwealth States :	Gross.	£	gross.		
New South Wales	1,804	1,221			
Victoria	7,844	3,269			
South Australia	396	191			
Tasmania	43,267	15,086			
	53,311	19,767			
Denmark		15,200			1,661
Netherlands		510			62
Sweden		7,200			953
	76,221	22,443			

APPENDIX 2B—continued.

Imports of Timber, Tanning Substances and Essential Oils during the Year ended 30th June, 1954.

Item and Country of Origin†	Quantity.	£	Item and Country of Origin†	Quantity.	£
<i>Doors of Wood (including Fly Doors) Wholly or partly made up—</i>			<i>Furniture—</i>		
Commonwealth States : No. £	No.		Commonwealth States : £		
New South Wales 10 56			New South Wales 22,345		
Victoria 153 474			Victoria 41,283		
Queensland 1,100 3,199			Queensland 5,443		
South Australia 16 66	1,279	3,795	South Australia 33,220		
			Northern Territory 134		
			United Kingdom		107,425
<i>Incubators, N.E.I., Foster Mothers and Brooders—</i>			Aden and Dependencies		3,346
Commonwealth of Australia :			Canada		8
New South Wales 74	74	1,442	Hong Kong		1
			India, Republic of		922
<i>Lasts—</i>			Malaya, Federation of		172
Commonwealth of Australia:			New Zealand		229
Doz. £	Doz.		Singapore		3
New South Wales 33 209			China		866
Victoria 115 1,282			Czechoslovakia		68
South Australia 81 342	229	1,833	Egypt		250
United Kingdom	36	298	Germany (West Zone)....		3
			Italy		58
	265	2,131	Japan		174
			Netherlands		12
			Norway		591
			Madeira		1
			Sweden		1,773
			Switzerland		4
					115,907
<i>Match Splints—</i>			Total—Wood Manufactures		369,469
Finland		3,975			
Soviet Russia (Baltic and Northern Ports)		13,257	Total—Wicker and Bamboo, Timber and Wood Manufactures		923,367
		17,232			
<i>Oars and Sculls—</i>			ESSENTIAL OILS.		
Commonwealth States : No. £	No.		<i>Essential Oils, Natural, Non-Spirituous—</i>	lb.	
New South Wales 1,804 3,196			Commonwealth States : lb. £		
Victoria 26 28			New South Wales 135,411 27,921		
Queensland 252 414			Victoria 10,648 4,807		
South Australia 88 190	2,170	3,838	Queensland 2 6		
			South Australia 22,983 7,473		
			United Kingdom	169,044	40,207
<i>Tool Handles—</i>			Ceylon	281	443
Commonwealth States : £			Zanzibar and Pemba	2,232	628
New South Wales 33,844			Madagascar	6,720	4,296
Victoria 9,275			India, Republic of	4,832	4,290
Queensland 1,097			Seychelles and Dependencies	1,630	747
South Australia 1,750			Singapore	7,981	4,700
Tasmania 2,895			Brazil	14	70
			China	2	1
United Kingdom		48,771	Czechoslovakia	1,734	825
Germany (West Zone)....		4,880	France	4	6
Netherlands		30	Morocco (French Zone)....	74	159
Sweden		1	Indonesia, Republic of	20	11
		149	Italy	2,295	761
			Paraguay	143	414
			Spain	441	445
			United States of America	16	12
				1	4
				197,564	58,019
<i>Wood Wool—</i>			TANNING SUBSTANCES—NATURAL ORIGIN.		
Commonwealth States—			<i>Tanning Bark—</i>		
Victoria 190	Cwt.	414	Commonwealth States :	Cwt.	
			Tasmania	250	553
<i>Articles of Wood (except Furniture), N.E.I. :</i>			<i>Tanning Extracts—</i>		
Commonwealth States : £			Commonwealth States : Cwt. £		
New South Wales 27,383			New South Wales 16 126		
Victoria 42,177			Victoria 221 1,025		
Queensland 3,396				237	1,151
South Australia 13,158			South Africa, Union of	7,685	37,306
Tasmania 291			Norway	649	577
Commonwealth of Australia*		10	Sweden	341	437
United Kingdom		6,433		8,912	39,471
Hong Kong		54	<i>Other Tanning Substances—Natural Origin—</i>		
India, Republic of		13	Commonwealth States :		
Malaya, Federation of		50	New South Wales	14	97
Pakistan		76	United Kingdom	128	616
Singapore		8	India, Republic of	2,579	4,211
Czechoslovakia		2	Norway	49	43
Egypt		5	Sweden	100	211
France		91		2,870	5,178
Germany (West Zone)....		411	Total—Tanning Substances		45,202
Italy		260			
Netherlands		62	Total Value—All Imports Shown in this Return		1,026,588
Siam (Thailand)		1			
Sweden		349			
United States of America		34			
		94,269			

* Produce of Australia previously exported, now returned to this State. † The tabulation of origin for interstate imports was discontinued on the 1st July, 1952, and imports from the Commonwealth States now include goods of overseas origin which, in previous years, have been recorded according to country of origin.

APPENDIX 2C.

SUMMARY OF EXPORTS OF FOREST PRODUCE SINCE 1836.

Year.	Timber.		Year.	Timber.		Wood Manu-	Tanning	Essential
	Cub. ft.	Value.		Cub. ft.	Value	factures.	Materials.	Oils.
		£			£	£	£	£
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	1,063,700	74,804	....	....	....
1840 ....	....	....	1895	1,255,250	88,146	....	....	....
1841 ....	....	....	1896	1,545,600	116,420	....	....	....
1842 ....	....	....	1897	2,393,300	192,451	....	....	....
1843 ....	....	....	1898	4,086,150	326,195	....	....	....
1844	(b)	163	1899	6,913,550	553,198	....	....	....
1845 ....	....	....	1900	5,725,400	453,461	....	....	....
1846	2,550	255	1901	7,150,600	572,354	....	....	....
1847	12,200	1,120	1902	6,256,750	500,533	....	....	....
1848	3,350	333	1903	7,748,450	619,705	....	859	....
1849 ....	....	....	1904	8,072,300	654,949	....	32,876	....
1850	10,500	1,048	1905	8,709,500	689,943	....	154,087	....
1851 ....	....	....	1906 (c)	8,830,700	708,993	....	140,720	....
1852	1,250	268	1907 (c)	6,409,550	511,923	....	98,773	....
1853	7,050	806	1908 (c)	9,869,500	813,591	....	79,934	....
1854	52,200	5,220	1909 (c)	10,830,450	867,419	....	59,633	....
1855	58,500	7,023	1910 (c)	12,074,100	972,698	....	93,733	....
1856	76,900	12,076	1911 (c)	12,449,500	986,341	....	83,470	....
1857	70,500	9,671	1912 (c)	11,297,100	903,396	....	49,094	....
1858	69,200	9,449	1913 (c)	13,619,850	1,089,481	....	47,377	....
1859	29,250	2,340	1914 (d)	6,279,750	502,153	....	18,197	5
1860	67,250	6,051	1915 (e)	9,968,500	808,392	....	6,127	381
1861	54,800	4,932	1916 (e)	5,432,100	441,991	....	10,208	1,102
1862 ....	....	....	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)	....	....	....	....	....
1867	183,950	15,693	1922 (e)	9,816,250	1,137,819	24,916	23,073	10,107
1868	85,650	6,849	1923 (e)	8,309,750	1,041,047	22,248	13,328	6,878
1869	56,750	4,541	1924 (e)	7,911,310	997,454	12,377	21,161	20,075
1870	8,000	638	1925 (e)	11,126,861	1,367,517	11,505	29,606	39,877
1871	179,900	14,273	1926 (e)	11,844,303	1,477,997	13,928	40,136	42,057
1872	157,200	17,551	1927 (e)	12,001,384	1,522,958	10,072	15,056	47,819
1873	218,500	15,304	1928 (e)	12,580,262	1,651,149	8,727	15,818	26,454
1874	37,000	2,590	1929 (e)	10,384,784	1,265,383	7,783	27,662	39,131
1875	68,150	4,771	1930 (e)	7,635,237	960,435	6,603	35,850	63,307
1876	345,600	24,192	1931 (e)	6,579,743	807,425	4,687	40,628	77,510
1877	342,350	23,965	1932 (e)	4,127,856	507,382	26,615	35,333	56,170
1878	219,050	23,743	1933 (e)	3,062,673	361,700	85,488	42,016	59,301
1879	336,150	36,979	1934 (e)	2,235,540	262,617	80,332	33,352	26,331
1880	580,900	63,902	1935 (e)	4,060,830	487,248	76,107	20,904	26,720
1881	627,250	69,742	1936 (e)	5,326,117	636,466	65,494	15,284	35,363
1882	662,550	66,252	1937 (e)	5,598,180	679,522	50,665	12,237	27,526
1883 ....	....	....	1938 (e)	5,673,903	699,684	52,338	14,491	38,185
1884	792,750	79,277	1939 (e)	7,545,744	932,420	47,934	13,865	35,128
1885	936,500	93,650	1940 (e)	5,704,250	722,310	43,518	17,842	25,550
1886	997,000	79,760	1941 (e)	5,049,585	634,859	62,796	19,485	47,736
1887	861,700	68,936	1942 (e)	6,091,187	790,876	74,935	13,686	59,867
1888	848,150	67,850	1943 (e)	5,224,634	700,474	64,454	6,896	74,904
1889	626,150	50,092	1944 (e)	3,516,566	605,327	32,426	1,598	70,253
1890	354,800	28,384	1945 (e)	3,645,354	613,994	25,324	1,294	72,704
1891	525,750	42,060	1946 (e)	2,851,475	570,028	27,307	2,795	103,055
1892	788,500	63,080	1947 (e)	3,373,025	722,061	(f) 2,616	4,872	128,050
1893	1,172,200	82,052	1948 (e)	3,458,628	865,255	(f) 13,118	12,056	151,768
1894 ....	....	....	1949 (e)	3,584,405	1,099,073	(f) 6,572	9,556	116,465
1895 ....	....	....	1950 (e)	3,198,212	993,152	(f) 6,639	5,112	75,395
1896 ....	....	....	1951 (e)	2,857,946	974,493	(f) 13,525	8,243	78,550
1897 ....	....	....	1952 (e)	2,342,492	(g) 918,485	(f) 25,101	16,581	125,833
1898 ....	....	....	1953 (e)	2,373,553	(g) 1,032,909	(f) 47,689	19,120	119,109
1899 ....	....	....	1954 (e)	3,965,188	(g) 2,074,421	(f) 120,095	34,136	70,852
1900 ....	....	....	Total	3,858,956	(g) 2,248,320	(f) 59,360	80,248	55,273
1901 ....	....	....				
1902 ....	....	....				
1903 ....	....	....				
1904 ....	....	....				
1905 ....	....	....				
1906 (c)	....	....				
1907 (c)	....	....				
1908 (c)	....	....				
1909 (c)	....	....				
1910 (c)	....	....				
1911 (c)	....	....				
1912 (c)	....	....				
1913 (c)	....	....				
1914 (d)	....	....				
1915 (e)	....	....				
1916 (e)	....	....				
1917 (e)	....	....				
1918 (e)	....	....				
1919 (e)	....	....				
1920 (e)	....	....				
1921 (e)	....	....				
1922 (e)	....	....				
1923 (e)	....	....				
1924 (e)	....	....				
1925 (e)	....	....				
1926 (e)	....	....				
1927 (e)	....	....				
1928 (e)	....	....				
1929 (e)	....	....				
1930 (e)	....	....				
1931 (e)	....	....				
1932 (e)	....	....				
1933 (e)	....	....				
1934 (e)	....	....				
1935 (e)	....	....				
1936 (e)	....	....				
1937 (e)	....	....				
1938 (e)	....	....				
1939 (e)	....	....				
1940 (e)	....	....				
1941 (e)	....	....				
1942 (e)	....	....				
1943 (e)	....	....				
1944 (e)	....	....				
1945 (e)	....	....				
1946 (e)	....	....				
1947 (e)	....	....				
1948 (e)	....	....				
1949 (e)	....	....				
1950 (e)	....	....				
1951 (e)	....	....				
1952 (e)	....	....				
1953 (e)	....	....				
1954 (e)	....	....				
Total	397,021,033	48,528,132				1,266,944	1,655,249	2,068,537

(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			1931-32	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
				Total	12,627,629	387,426	1,228,045

* 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) ....	....	....	1,564,874	1948 (c)	445,027	177,438	622,465
1928 (c)	855,625	466,689	1,322,314	1949 (c)	405,236	196,286	601,522
1929 (c)	645,795	221,979	867,774	1950 (c)	421,623	198,653	620,276
1930 (c)	633,083	233,072	866,155	1951 (c)	507,829	214,261	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)	684,468	260,428	944,896
1933 (c)	263,313	49,133	312,446	1954 (c)	749,719	271,240	1,020,959
1934 (c)	425,262	126,608	551,870	Total	....	....	37,647,972
1935 (c)	549,165	229,035	778,200				

* 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, 1953.

The number of Mills registered under the provisions of the Act at the close of the year totalled 299 (162 Crown Lands, 137 Private Property).

The average number of persons employed on timber holdings each month throughout the year was 5,724 compared with 5,395 last year.

The District and Workmen's Inspectors made 1,359 inspections of timber holdings and investigated and reported on 891 notifiable accidents, of which eight were fatal.

The number of accidents per 100 persons employed was 15·5 compared with 13·4 for last year.

The total period of incapacity as a result of accidents was 23,496 days, an average of 26·2 days per injured person (compared with 23·3 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 1953, 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 cost to the Forests Department of administering the Timber Industry Regulation Act for the year ending 30th June, 1954, was as follows :—

	£
Salaries	1,815
Mileage and Travelling Allowances	956
Sundries	310
	<hr/>
	3,081

A. C. HARRIS,
Controlling Officer.