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FORESTRY CONFERENCE  
1952

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GENERAL STATISTICAL STATEMENT  
WESTERN AUSTRALIA

Prepared by  
T. N. STOATE, M.Sc. (Adel.), Dip. For. (Oxon)  
Conservator of Forests

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Issued under Authority  
Hon. G. P. WILD, M.L.A.  
Minister for Forests

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## CHAPTER I.

### A Description of the part played by Forestry and the Forest Industry in the Economic Structure of the Country in the five years 1946-50.

#### A.—AREA STATEMENT—WESTERN AUSTRALIA. (All areas stated in square miles.)

1. Total area of forest	41,256
2. Total area of land permanently devoted to agriculture, short term fallow, and improved pasture	24,844
3. Total area of other land, excluding water surfaces	898,008
4. Total land area, excluding water surfaces	964,108
5. Forest area as a percentage of total land area	4.25%
6. Total population in millions	0.57
7. Population per square mile	0.60

Table 1.

#### CLASSIFICATION OF FOREST AREA, 1950.

(Square miles.)

Class of Forest. (1)	State Forest. (2)		Communal Forest. (3)		Private Forest. (4)		Total. (5)	Percentage of total forest (6) (See note below.)
	a. Reserved.	b. Other.	a. Reserved.	b. Other.	a. Reserved.	b. Other.		
<i>(a) Exploitable (South-West Zone)—</i>								
(i) Softwoods (conifers)	20	....	....	....	....	....	20	·05
(ii) Mixed woods	....	....	....	....	....	....	....	....
(iii) Hardwoods (broadleaved)	5,826	4,829	....	....	....	310	10,965	26·59
Total	5,846	4,829	....	....	....	310	10,985	26·64
<i>(b) Potentially exploitable (South-West Zone)—</i>								
(i) Softwoods (conifers) (young pines)	....	....	....	....	....	....	....	....
(ii) Mixed woods	....	....	....	....	....	....	....	....
(iii) Hardwoods (broadleaved)	....	....	....	....	....	1,562	1,562	....
Total	....	....	....	....	....	1,562	1,562	3·79
<i>(c) Other land classed as forest (low rainfall woodlands)</i>								
	3,124	25,085	....	....	....	500	28,709	69·57
Grand Total	8,970	29,914	....	....	....	2,372	41,256	100·00
Percentage of total forest area	21·75	72·50	....	....	....	5·75	100·00	....

NOTE.—Percentages may be misleading in view of the large area of low rainfall woodlands.

#### NOTES ON TABLE I.

(i) The total area of forest as shown in Table 5 is recorded as 41,256 square miles, inclusive of woodlands of the low rainfall areas of 28,709 square miles, which produce only fuel, fence posts, and round mining timbers.

(ii) The total area of land permanently devoted to agriculture, short term fallow, and improved pasture is 24,844 square miles.

(iii) Total area of other land, excluding water surfaces, is 898,008 square miles. A large percentage of this area is semi-arid pastoral country under leasehold.

(iv) Total land area, excluding water surfaces, is 964,108 square miles. (Water surfaces, 11,812 square miles.)

(v) Forest areas, as a percentage of total land area, is 4.25, but if exploitable and potentially exploitable forest only is considered, the percentage is only 1.4.

(vi) The total population is 0.57 million.

(vii) Population per square mile is 0.6.

(viii) There have been very few changes in land tenure during the period 1946-1950.

**B.—PROGRESS IN SURVEY OF FOREST RESOURCES.**

(i) AREA OF FOREST SURVEYED, WITH TOPOGRAPHICAL DETAILS, UP TO THE END OF 1950.

(Square miles.)

Table 2.

Class of Forest. (1)	Approximate Scale.				Total. (6)	Percentage of Totals given in Col. 5 of Table 1. (7)
	Over 2 inches = 1 mile. (2)	2 inches = 1 mile. (3)	1 inch = 1 mile. (4)	½ inch = 1 mile. (5)		
(a) <i>Exploitable</i> —						
(i) Reserved	3,000	....	....	....	....	52
(ii) Other	....	....	....	....	....	....
Total	3,000	....	....	....	3,000	38
(b) <i>Potentially exploitable</i> —						
(i) Reserved	....	....	....	....	....	....
(ii) Other	....	....	....	....	....	....
Total	....	....	....	....	....	....
(c) <i>Other land classed as forest</i> —						
(i) Reserved	....	....	....	....	....	....
(ii) Other	....	....	....	....	....	....
Total	....	....	....	....	....	....
Grand Total	3,000	....	....	....	3,000	Not applicable

(ii) AREA OF FOREST FOR WHICH THERE ARE RELIABLE ESTIMATES OF GROWING STOCK BASED ON COMPLETE OR PARTIAL ENUMERATION, IN SQUARE MILES.

(a) <i>Exploitable</i> —		(b) <i>Potentially exploitable</i> —	
Reserved	5,836	Reserved	10
Other	295	Other	500
Total	6,131	Total	510

(iii) DISCUSSION OF THE PROGRESS OF SURVEY OF FOREST RESOURCES.

Commencing in 1922, the main forest areas of approximately 7,000 square miles were assessed on a basis of approximately 5 per cent.

This work, with adjustments from time to time, formed the basis of working plans.

From 1930 to 1950 no major assessments were carried out, but corrections to figures for areas being cut over for sawmilling were made, this work being based on the figures for volume and areas cut over and reported quarterly and recorded on progress plans.

From 1940 onwards a more precise estimate was obtained by means of temporary assessment lines run by the forester each quarter through the area cut over, and by permanent lines which were pegged and assessed with a view to providing figures for management purposes and for long-term increment studies.

At the end of 1950 about 360 miles of permanent assessment line had been run, and the pace of the work commenced to be accelerated with a view to having more accurate figures for the revision of the working plan due in 1955.

From 1945 onwards the Department commenced to use air photo interpretation as the basis of the survey of forest resources, and increasing work in this direction is anticipated both in connection with forest management studies and with the production of the overall Australian Forest Inventory, which, it is anticipated, will be completed by 1960.

Apart from some small assistance from the Commonwealth on particular areas, this survey of forest resources is carried out entirely by the staff of the Forests Department of Western Australia.

Table 3.

VOLUME OF STANDING TIMBER AND INCREMENT IN EXPLOITABLE FOREST AS IT STOOD AT THE END OF 1950.

(Thousands of cubic feet of round timber in true measure under bark.)

Class of Forest and Timber.  (1)	Volume.		Gross annual increment.		Natural annual losses by fire, decay, insects, windfall, etc.  (6)	Net annual increment ± [Col. 5 minus Col. 6 minus Col. 7 of Table 4 (loss due to harvesting).]  (7)
	Per square mile.  (2)	Total.  (3)	Per square mile.  (4)	Total.  (5)		
<i>State—</i>						
(i) Softwoods (conifers) ....	1,600	16,000	96	960	<i>nil</i>	+960
(ii) Hardwoods (broadleaved) ....	400	2,500,000	Unknown*	Unknown*	Unknown	Unknown
Total	....	2,516,000	....	....	....	....
<i>Communal—</i>						
(i) Softwoods (conifers) ....	....	....	....	....	....	....
(ii) Hardwoods (broadleaved) ....	....	....	....	....	....	....
Total	....	....	....	....	....	....
<i>Private—</i>						
(i) Softwoods (conifers) ....	....	....	....	....	....	....
(ii) Hardwoods (broadleaved) ....	320	48,200	Unknown	Unknown	Unknown	Unknown
Total	....	48,200	....	....	....	....
<i>Total—</i>						
(i) Softwoods (conifers) ....	....	16,000	....	....	....	....
(ii) Hardwoods (broadleaved) ....	....	2,548,200	....	....	....	....
Grand Total	....	2,564,200	....	....	Unknown	Unknown

\* A rough estimate only can be given, say 6 cubic feet per acre per annum = 24 million cubic feet.

EXPLANATORY NOTES—TABLE 3.

*Volume of Timber.*

Softwood assumed half of present plantations exploitable at present, balance is young pine.

10 square miles = 6,400 acres at 50 loads = 2,500 cubic feet.

6,400 x 2,500 = 16 million.

Increment.

640 ) 96,000 cubic feet per square mile.

150 cubic feet per acre, average.

*State (ii).*

Hardwood—Volume, 50 million loads.

On 4 million acres = 12.5 loads per acre.

= 8,000 loads per square mile.

= 400,000 cubic feet per square mile.

50 million loads = 2,500 million cubic feet.

4 million acres at 6 cubic feet = 24,000,000 cubic feet.

*Private (ii)*

Hardwood—320 square miles at 5 loads per acre = 964,000 loads.

= 48,200,000 cubic feet.

**C.—WOOD AND WOOD PRODUCTS—OUTPUT, IMPORTS, EXPORTS, AND HOME CONSUMPTION.**

In studying Tables 4 and 5 it should be noted that the figures given for imports and exports are those for overseas trade only, and do not, therefore, give a true picture of the position of Western Australia as an exporter.

The bulk of the exports from this State go to the Eastern States, and the approximate present position may be summarised by saying that of the total production of sawn timber 73 per cent. is used locally, 9 per cent. is exported overseas, and 18 per cent. is exported to the Eastern States of Australia, giving a total export of 27 per cent.

Prior to the war Western Australia exported up to 47 per cent., and by 1946 this had fallen to 38 per cent.

During the post-war period, in spite of a gradually increasing production, local demands have increased, and while exports to the Eastern States have increased, overseas exports have been reduced to less than 10 per cent. of the total production.

So far as can be predicted at present the growing population of Western Australia will be in a position to absorb increasing quantities of timber, but a percentage can continue to be exported for the use of the Eastern States and certain British Commonwealth countries. It is thought also that in the not very distant future the population of Western Australia alone will require the whole of the sawn timber output until such time as supplies of softwood become available from exotic plantations.

Table 4.  
OUTPUT OF HOME GROWN WOOD FOR THE YEAR 1949-1950.  
(Thousands of cubic feet; the equivalent of round timber in true measure under bark.)

Class of Timber and Forest. (1)	Timber. (2)	Roundwood. (3)	Pulpwood. (4)	Firewood. (5)	Charcoal wood. (6)	Total. (7)	Total Value in £ Sterling. (8)
<i>State—</i>							
(i) Softwoods (conifers) ....	337	....	....	....	....	337	16,176
(ii) Hardwoods (broadleaved) ....	20,744	499	....	26,048	1	42,292	1,513,040
Total ....	21,081	499	....	26,048	1	47,629	1,529,216
<i>Communal—</i>							
(i) Softwoods (conifers) ....	....	....	....	....	....	....	....
(ii) Hardwoods (broadleaved) ....	....	....	....	....	....	....	....
Total ....	....	....	....	....	....	....	....
<i>Private—</i>							
(i) Softwoods (conifers) ....	60	....	....	....	....	60	2,880
(ii) Hardwoods (broadleaved) ....	9,872	465	....	1,600	....	11,937	382,000
Total ....	9,932	465	....	1,600	....	11,997	384,880
<i>Total—</i>							
(i) Softwoods (conifers) ....	397	....	....	....	....	397	19,056
(ii) Hardwoods (broadleaved) ....	30,616	964	....	27,648	1	59,229	1,895,040
Grand Total ....	31,013	964	....	27,648	1	59,626	1,914,096
Value of Grand Total in £ Sterling	....	....	....	....	....	....	....
Local Units of Measurement and Conversion Factors	Super. feet	LoadsorCords	....	Tons	Tons		

NOTE.—1 load = 50 cubic feet True Volume.

Table 5.  
GROSS IMPORTS AND EXPORTS FOR THE YEAR 1950.  
(Volumes in thousands of cubic feet in the equivalent of round timber in true measure under bark; and value in £ sterling.)

Category.	Average Gross Imports.		Average Gross Exports.		Average Net Imports (+), Exports (—).	
	Thousands of Cubic Feet.	C.I.F. Value in £ Sterling.	Thousands of Cubic Feet.	F.O.B. Value in £ Sterling.	Thousands of Cubic Feet.	Value in £ Sterling.
<i>Primary Products—</i>						
Softwood logs (conifers) ....	53	14,278	....	....	+ 53	+ 14,278
Sleepers (sawn and hewn) ....	....	....	....	....	....	....
Other sawn and hewn timber ....	395	121,052	....	....	+ 395	+ 121,052
Total Softwood Timber ....	448	135,330	....	....	+ 448	+ 135,330
Roundwood ....	....	....	....	....	....	....
Pulpwood ....	....	....	....	....	....	....
Firewood ....	....	....	....	....	....	....
Other sorts of wood ....	....	....	....	....	....	....
Total Softwood ....	....	....	....	....	....	....
Hardwood logs (broadleaved) ....	50	14,844	....	....	+ 50	+ 14,844
Sleepers (sawn and hewn) ....	....	....	607	87,387	— 607	— 87,387
Other sawn and hewn timber ....	78	20,264	1,552	207,692	— 1,474	— 187,428
Total Hardwood Timber ....	128	35,108	2,159	295,079	— 2,031	— 259,971
Roundwood ....	....	....	....	....	....	....
Pulpwood ....	....	....	....	....	....	....
Firewood ....	....	....	....	....	....	....
Other sorts of wood ....	....	....	....	....	....	....
Total Hardwood ....	....	....	....	....	....	....
Total Primary Products ....	576	170,438	2,159	295,079	— 1,583	— 124,641
<i>Derivative Products—</i>						
Veneers, plywood, and other veneer products, excluding matches ....	....	357	....	200	....	+ 157
Matches ....	....	1	....	....	....	+ 1
Paper and pulp products ....	968	449,009	1	647	+ 967	+ 448,362
Pulp ....	....	....	....	....	....	....
Paper manufactures ....	....	203,835	....	3,176	....	+ 200,659
Furniture and cabinet ware ....	....	11,047	....	96	....	+ 10,951
Other wooden ware and builders' wood- work ....	....	34,661	....	1,211	....	+ 33,450
Charcoal ....	....	29	....	5	....	+ 24
Total Derivative Products ....	968	698,939	1	5,335	+ 967	+ 693,604
Grand Total ....	1,544	869,377	2,160	300,414	— 616	+ 568,963

Table 5A.

## GROSS IMPORTS FROM DIFFERENT SOURCES FOR THE YEAR 1950.

Volumes in thousand of cubic feet in the equivalent of round timber in true measure under bark; and value in £ sterling, C.I.F.

Category.	SOURCES.													
	United Kingdom.		Canada.		New Zealand.		India, Malaya, etc.*		British Borneo.		British Pacific Islands.		Other British.	
	Vol.	C.I.F. Value.	Vol.	C.I.F. Value.	Vol.	C.I.F. Value.	Vol.	C.I.F. Value.	Vol.	C.I.F. Value.	Vol.	C.I.F. Value.	Vol.	C.I.F. Value.
<i>Primary Products—</i>														
<i>Softwood (conifers):</i>														
Logs .....									53	14,278				
Sleepers (sawn and hewn) .....														
Other sawn and hewn timber .....							2	577						
Total Softwood Timber .....							2	577	53	14,278				
Roundwood .....														
Pulpwood .....														
Firewood .....														
Other sorts of wood .....														
Total Softwood .....														
<i>Hardwood (broadleaved):</i>														
Logs .....									50	14,844				
Sleepers (sawn and hewn) .....														
Other sawn and hewn timber .....							28	7,404	47	10,000				
Total Hardwood Timber .....							28	7,404	97	24,853				
Roundwood .....														
Pulpwood .....														
Firewood .....														
Other sorts of wood .....														
Total Hardwood .....														
Total Primary Products .....							30	7,981	150	39,131				
<i>Derivative Products—</i>														
Veneers, plywood, and other veneer products, excluding matches .....		67												
Matches .....														
Pulp .....														
Paper and pulp products .....	421	216,301	61	18,777										
Paper manufactures .....		186,996		49		1,373		158						78
Furniture and cabinetware .....		3,631		1		4		1,414						1
Other wooden ware and builder's woodwork .....		13,824		22				131						40
Charcoal .....		29									1			
Total Derivative Products .....	421	420,848	61	18,849		1,377		1,703			1			119
Grand Total .....	421	420,848	61	18,849		1,377	30	9,684	150	39,131		1		119

Category.	SOURCES.													
	U.S.A.		Japan.		Italy, Austria, etc.†		Sweden, Norway, Finland.		Other European.		Other Foreign.		Brazil.	
	Vol.	C.I.F. Value.	Vol.	C.I.F. Value.	Vol.	C.I.F. Value.	Vol.	C.I.F. Value.	Vol.	C.I.F. Value.	Vol.	C.I.F. Value.	Vol.	C.I.F. Value.
<i>Primary Products—</i>														
<i>Softwood (conifers):</i>														
Logs .....														
Sleepers (sawn and hewn) .....														
Other sawn and hewn timber .....							393	120,475						
Total Softwood Timber .....							393	120,475						
Roundwood .....														
Pulpwood .....														
Firewood .....														
Other sorts of wood .....														
Total Softwood .....														
<i>Hardwood (broadleaved):</i>														
Logs .....														
Sleepers (sawn and hewn) .....														
Other sawn and hewn timber .....	3	2,851												
Total Hardwood Timber .....	3	2,851												
Roundwood .....														
Pulpwood .....														
Firewood .....														
Other sorts of wood .....														
Total Hardwood .....														
Total Primary Products .....	3	2,851					393	120,475						
<i>Derivative Products—</i>														
Veneers, plywood, and other veneer products, excluding matches .....								290						
Matches .....		1												
Pulp .....														
Paper and pulp products .....	1	745			13	7,053	468	202,632	1	2,202	3	1,299		
Paper manufactures .....		7,222				591		14		7,185		169		
Furniture and cabinetware .....		60				36		4,481		858		561		
Other wooden ware and builder's woodwork .....		466			7		77	1,687		5,475		12,931		
Charcoal .....														
Total Derivative Products .....	1	8,494			7	7,757	468	209,104	1	15,720	3	14,960		
Grand Total .....	4	11,345			7	7,757	861	329,579	1	15,720	3	14,960		

\* India, Malaya, Hong Kong, Ceylon, Burma, Singapore.

† Italy, Austria, Roumania, Czechoslovakia, Yugoslavia.

Table 5B.

## GROSS EXPORTS TO DIFFERENT DESTINATIONS FOR THE YEAR 1950.

(Volume in thousand of cubic feet in the equivalent of round timber in true measure under bark ; and value in £ sterling. )

Category.	DESTINATIONS.													
	United Kingdom.		Canada.		New Zealand.		India, etc.*		New Guinea.†		Nauru.		Fiji.	
	Vol.	F.O.B. Value.	Vol.	F.O.B. Value.	Vol.	F.O.B. Value.	Vol.	F.O.B. Value.	Vol.	F.O.B. Value.	Vol.	F.O.B. Value.	Vol.	F.O.B. Value.
<i>Primary Products—</i>														
Softwood (conifers):														
Logs														
Sleepers (sawn and hewn)														
Other sawn and hewn timber														
Total Softwood Timber														
Roundwood														
Pulpwood														
Firewood														
Other sorts of wood														
Total Softwood														
Hardwood (broadleaves):														
Logs														
Sleepers (sawn and hewn)	49	7,387					82	11,585						
Other sawn and hewn timber	854	123,146			53	6,144	26	3,933						
Total Hardwood Timber	903	130,533			53	6,144	108	15,518						
Roundwood														
Pulpwood														
Firewood														
Other sorts of wood														
Total Hardwood														
Total Primary Products	903	130,533			53	6,144	108	15,518						
<i>Derivative Products—</i>														
Veneers, plywood, and other veneer products, excluding matches								200						
Matches														
Pulp														
Paper and pulp products	1	573												
Paper manufactures		546						1,530						
Furniture and cabinetware								4						
Other wooden ware and builder's woodwork		407		690										
Charcoal						5								
Total Derivative Products	1	1,526		690		5		1,734						
Grand Total	904	132,059		690	53	6,149	108	17,252						

Category.	DESTINATIONS.											
	South Africa.		British Pacific Islands.		Other British.		U.S.A.		Iran, etc.		Other Foreign.	
	Vol.	F.O.B. Value.	Vol.	F.O.B. Value.	Vol.	F.O.B. Value.	Vol.	F.O.B. Value.	Vol.	F.O.B. Value.	Vol.	F.O.B. Value.
<i>Primary Products—</i>												
Softwood (conifers):												
Logs												
Sleepers (sawn and hewn)												
Other sawn and hewn timber												
Total Softwood Timber												
Roundwood												
Pulpwood												
Firewood												
Other sorts of wood												
Total Softwood												
Hardwood (broadleaved):												
Logs												
Sleepers (sawn and hewn)	275	39,785			30	4,420			171	24,210		
Other sawn and hewn timber	395	46,030	90	9,784					79	9,628	55	9,027
Total Hardwood Timber	670	85,815	90	9,784	30	4,420			250	33,838	55	9,027
Roundwood												
Pulpwood												
Firewood												
Other sorts of wood												
Total Hardwood												
Total Primary Products	670	85,815	90	9,784	30	4,420			250	33,838	55	9,027
<i>Derivative Products—</i>												
Veneers, plywood, and other veneer products, excluding matches												
Matches												
Pulp												
Paper and pulp products					74							
Paper manufactures					800		128		40			132
Furniture and cabinetware					92							
Other wooden ware and builder's woodwork					114							
Charcoal												
Total Derivative Products					1,080		128		40			132
Grand Total	670	85,815	90	10,864	30	4,548		40	250	33,838	55	9,159

\* India, Malaya, Hong Kong, Ceylon, Burma, Singapore.

† New Guinea, Papua, New Hebrides.



**D.—MINOR FOREST PRODUCTS—OUTPUT, IMPORTS, EXPORTS, AND HOME CONSUMPTION.**

Western Australia lists a total output almost entirely from Crown lands of minor forest products to the value of nearly £200,000, the greater portion of which is made up of Sandalwood and oils, and tanstuffs in the form of extracts from the wandoo (*euc. redunca*).

Exports in these items have shown a large increase during the period 1946-50, chiefly due to the expansion of the tannin industry and to a resumption in sandalwood sales which had practically disappeared during the war years.

In most of the items noted in Table 6, Western Australia is an importer, but on the whole exports minor forest products in value exceeding imports.

Statistics available for Table 6 are not considered very reliable and home consumption in some items cannot be gauged due to the fact that stock piling may give an export exceeding production for any one year.

Table 6.  
OUTPUT—IMPORTS, EXPORTS, AND HOME CONSUMPTION FOR THE YEAR 1950.  
(Values in £ sterling.)

Category. (1)	Output in Value by Ownership.				Imports, C.I.F. Value. (6)	Exports, F.O.B. Value. (7)	Average net Imports (+) or Exports (-). (8)	Home Consumption Col. 5 ± Col. 8. (9)
	State. (2)	Communal. (3)	Private. (4)	Total. (5)				
	£	£	£	£	£	£	£	£
Animal products	....	....	....	59·200	1·131	68·873	— 67·742	....
Bamboos, canes	....	....	....	....	11·793	....	+ 11·793	11·793
Drugs, spices	....	....	....	....	36·547	1·583	+ 34·964	34·964
Fibres, flosses	....	....	....	....	80·591	....	+ 80·591	80·591
Fodder and grazing	....	....	....	....	....	....	....	....
Grass other than fodder	....	....	....	....	....	....	....	....
Gums, resins, lac	....	....	....	....	8·825	·661	+ 8·164	8·164
Rubber and latex	....	....	....	....	13·359	....	+ 13·359	13·359
Incense and perfume woods	....	....	....	36·436	....	61·618	— 61·618	....
Tanstuffs, dyestuffs	....	....	....	58·796	17·251	180·262	— 163·011	....
Vegetable ivories	....	....	....	....	....	....	....	....
Vegetable oils and oil seeds	....	....	....	44·800	47·058	25·043	+ 22·015	22·785
Other sorts of minor forest produce, cocoanut	....	....	....	....	18·584	....	+ 18·584	18·584
Cork and cork manufactures	....	....	....	....	38·132	....	+ 38·132	38·132
<b>Total</b>	....	....	....	199·232	273·271	338·040	— 64·769	....

Table 6A.  
GROSS IMPORTS FROM DIFFERENT SOURCES FOR THE YEAR 1950.  
(Value in £s, C.I.F. Ports of Origin.)

Category.	COUNTRIES OF ORIGIN.												
	U.K.	Canada.	N.Z.	India, Malaya, etc.*	British Borneo.	British Pacific Islands.	Other British.	U.S.A.	Japan.	Italy, Austria, etc.†	Baltic.	Other Euro- pean.	Other Foreign.
	£	£	£	£	£	£	£	£	£	£	£	£	£
Animal products	8	....	....	....	....	....	....	....	....	....	....	701	422
Bamboos, canes	....	....	....	8,388	224	....	....	....	....	....	....	....	3,181
Drugs, spices	....	....	....	2,697	....	....	29,312	....	....	....	....	....	4,538
Fibres, flosses	328	....	....	55,822	....	....	....	....	....	....	....	....	24,441
Gums, resins, lac	210	....	....	3,542	....	....	70	2,913	....	1,693	....	23	374
Rubber, latex	1,471	....	....	11,888	....	....	....	....	....	....	....	....	....
Cocoanut products	170	....	....	17,671	....	743	....	....	....	....	....	....	....
Tanstuffs, dyestuffs	....	....	....	....	....	....	17,251	....	....	....	....	....	....
Vegetable oils	1,696	....	....	5,025	....	....	2,721	1,351	....	....	3,687	16,509	16,069
Cork, cork manufactures	2,636	....	....	....	....	....	....	....	....	....	....	35,496	....
Other rubber manufactures	362,594	488	....	102	....	....	590	24,835	....	3,584	....	6,147	....
<b>Total</b>	369,113	488	....	105,135	224	743	49,044	29,099	....	5,277	4,388	58,175	49,025

\* India, Malaya, Hong Kong, Ceylon, Burma, and Singapore. † Italy, Austria, Roumania, Czechoslovakia, Yugoslavia.

Table 6B.  
GROSS EXPORTS TO DIFFERENT DESTINATIONS FOR THE YEAR 1950.  
(Value in £s, F.O.B.)

Category.	DESTINATION.													
	U.K.	Canada.	N.Z.	India, Malaya, etc.*	British Borneo.	British Pacific Islands.	Other British.	U.S.A.	Japan.	Italy, Austria, etc.†	Sweden, Norway, Finland.	Other Euro- pean.	Other Foreign.	Brazil.
Animal products	33,378	146	....	8,910	....	....	75	24,382	....	....	....	879	1,103	....
Bamboos, canes	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Drugs, spices	223	....	....	48	....	....	1,312	....	....	....	....	....	....	....
Fibres, flosses	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Gums, resins, lac	648	....	....	....	....	13	....	....	....	....	....	....	....	....
Rubber, latex	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Incense woods	....	....	....	61,142	....	476	....	....	....	....	....	....	....	....
Tanstuffs, dyestuffs	....	....	....	....	....	....	....	....	....	3,073	....	623	....	....
Vegetable oils	17,388	200	16	2,967	....	....	2,722	....	....	....	....	....	....	1,750
Other rubber manufactures	....	....	....	....	....	75	....	....	....	....	....	....	1,482	....
<b>Total</b>	51,637	346	16	73,067	....	564	4,109	24,382	....	3,073	1,502	2,585	1,750	....

\* India, Malaya, Hong Kong, Ceylon, Burma, and Singapore. † Italy, Austria, Roumania, Czechoslovakia, Yugoslavia.

## E.—EMPLOYMENT AND CONSUMPTION.

Table 7.

EMPLOYMENT OF LABOUR IN FORESTRY AND FOREST INDUSTRIES, WITH CONSUMPTION OF WOOD AND MINOR FOREST PRODUCTS FOR THE YEAR 1950.

Employment Category.	No. of Industrial Units.	No. of Persons Employed Annually.	Quantities of Wood used in thous- or ands of cubic feet.	Value of minor products used in £ sterling.
A. Forestry—				
(1) Management, silvicultural, and protection	....	625	....	....
(2) Extraction	....	2,067*	....	....
B. Industrial—				
(1) Primary	....	4,651	....	....
(2) Secondary	....	Unknown	....	....
Total	....	7,343	....	....

\* Fallers, haulers, firewood getters, etc.

Table 7B.

EMPLOYMENT OF LABOUR IN FOREST INDUSTRIES, 1949-1950.

Employment Category.	Number of Industrial Units.	Number of Persons Employed Annually.
Primary—		
Sawmills	193	3,037
Plymills	1	75
Barkmills	4	5
Wall and Ceiling Boards	....	....
	<hr style="width: 50%; margin: 0 auto;"/>	<hr style="width: 50%; margin: 0 auto;"/>
	198	3,117
Secondary—		
Furniture	144	1,190
Wickerwork	7	30
Wood Turning and Carving	11	22
Joinery	81	858
Cooperage	5	50
Boxes and Cases	10	129
Perambulators	6	32
Musical Instruments	5	23
Other Wooden Ware	....	....
Matches, etc.	1	90
Vehicles	19	361
Brooms and Brushes, etc.	3	183
Toys and Sporting Goods	6	16
Paper-making	1	10
Stationery	1	....
Cardboard Boxes and Containers	4	54
Paper Bags	6	50
	<hr style="width: 50%; margin: 0 auto;"/>	<hr style="width: 50%; margin: 0 auto;"/>
	310	3,098

## CHAPTER II.

### Forest Policy and Management.

(i) *Forest Policy* of the State of Western Australia has undergone very little change with regard to the indigenous forests over a period of two decades. Sawmilling throughout is controlled under working plans which are revised every 10 years. The Forests Act, which is the main statement of policy, has remained virtually unchanged since 1918. Perhaps the major step in policy has been the approval of a pine plantation working plan aiming at the ultimate establishment of 200,000 acres of exotic pine, with an estimated annual planting programme of approximately 5,000 acres, being financed from loan funds.

(ii) *Forest Management in 1950.*—In so far as the control of cutting is concerned the whole of the State Forest of 3.4 million acres is under management and in practically all cases the felling of trees is governed by silvicultural requirements, each individual tree being tree-marked by the Forester. Of this area approximately two million acres have been cut over and regenerated following sawmilling operations, and such regeneration keeps pace annually with the area cut over. A well-developed fire protection system exists over these two million acres and is gradually being extended into the balance of State Forest, but this can take place only gradually owing to the necessity for roading over 1½ million acres. This roading keeps pace with sawmilling development, but owing to severe damage to virgin forests by fire it is desirable to push on track and fireline development ahead of utilisation. At 1950 over 12,000 miles of roads and tracks had been built, 1,300 miles of telephone line, 30 lookout towers, and 239 houses for resident staff and employees had been established.

(iii) *Other Factors affecting Forestry in Western Australia.*—The main effect of the 1939-45 war was a complete cessation of the pine planting programme. 13,000 acres had been planted at the beginning of the war, and planting was not effectively resumed until 1950, due to the shortage of men, materials, and finance. In 1948 the problem of finance commenced to be overcome by the allocation of loan funds for planting and housing. Equipment was built

up and clearing on a larger scale was commenced so that at the end of 1950 the Department was in a position financially and otherwise to anticipate a planting programme of at least 2,000 acres per annum, increasing as labour became available. The effect of the war years on the indigenous forest was comparatively small, due to the fact that sawmilling continued at its normal rate and regeneration followed at very little expense beyond the operation of top disposal following utilisation. The period however, 1939 to 1949, due to the lack of staff and the lack of normal rate development which would have taken place, resulted in severe fire damage over an area of at least a million acres in the far south, in which only a skeleton staff could be maintained. There is therefore an urgent necessity today to expand protection and management into this million acres. With the financial resources available annually to the Department this work must be regarded as a long-term project, but extra funds are being sought with a view to establishing at least 10,000 miles of additional roads and tracks over a period of five years which, with the attendant fire staff and organisation, could bring this area under management and reduce the serious annual losses which are continuing to occur.

One of the less observable, but nevertheless important, factors of the war and post-war years, has been the limiting of research work due to short staff. In 1950 a Forest Research Station was established at Dwellingup in co-operation with the Commonwealth, increased staff was obtained, and this work placed on a better footing.

### CHAPTER III.

#### Exploitation.

1. The sawmilling capacity of the State Forest is governed by a working plan, which is due for revision in 1955. Pending that revision the sawmilling limit is 30 million cubic feet per annum in the round, which represents approximately 10 million cubic feet of sawn timber. The present production is in the vicinity of seven million cubic feet sawn, and expansion to the permissible cut is rapidly taking place. Sawmilling on State Forest and private property is carried on by 250 sawmills. Private property is today producing approximately three million cubic feet of sawn timber annually but is not expected to continue in this production beyond two decades. At the 1955 revision of the working plan it is thought likely that an increased cut may become available from Crown lands of the marginal type, which, up to date, have not contributed to any large extent to timber production. These areas are listed in the potentially exploitable area of the South-West Zone.

Pulpwood is not as yet produced in Western Australia, and there appears little prospect of this within the next decade.

Plywood production has been developing steadily since 1946, mostly from karri (*euc. diversicolor*), with a percentage of imported logs. An annual production of over six million square feet of  $\frac{1}{2}$ -ply has been reached.

2. (i) Following on the 1945 working plan revision exploitable areas were extended over about  $\frac{1}{2}$ -million acres in the far South-West by the issue of new permits for five large mills. Due to post-war labour and machinery difficulties these five mills are only now beginning to come into full production. There are no areas which were specially exploitable during the war and which lost that ability due to post-war conditions.

(ii) There have been practically no improvements in extraction and conversion methods over the past decade except that a gradual change-over from horse and whim transport to tractor and truck logging has taken place. 3ft. 6in. gauge tramways continue to be the main method of extraction for large mills, but there is an increasing tendency for road haulage to replace tramways with smaller mills. The publication of grading rules and the timber inspection system in practice in Western Australia tend to a more complete utilisation, but economic conditions, including price fixing, have militated against the full application of the grading rules due to the fact that the current demand for timber exceeds supply and sawmillers and retailers do not apply the rules to the best advantage. The charcoal-iron industry established in the northern areas of the South-West Zone is practically the only large move towards a more complete utilisation of waste timber. The expansion of the tannin extract manufacture from wandoo (*euc. redunca*) is taking place, giving a more complete utilisation of the relatively low value wandoo forest.

(iii) No new timbers have been introduced on the market to any great extent, but blackbutt (*euc. patens*), tuart (*euc. gomphocephala*), and marri (*euc. calophylla*) are finding wider uses than in the past and have all been introduced in a small way to house building. Marri, in particular, of which there are comparatively large volumes available, has every prospect, as economic conditions permit, of coming into full use on the market.

(iv) Controls on fellings have been mentioned above under working plans. Imports are not controlled except insofar as Commonwealth duties affect them. Exports are loosely controlled through agreements with the timber industry, resulting in limitation of overseas exports in view of the present demands from both the Eastern States and our own population for timber supplies required for an increasing housing programme throughout Australia.

### CHAPTER IV.

#### Organisation of Research and Education—Any notable changes since 1945.

##### (i) Education.

There have been no notable changes in the facilities for education of the professional staff. A University training followed by two years at the Australian Forestry School is the basis for the Diploma of Forestry, which is required under the Forests Act, 1918-37, for entrance to the Professional Staff appointed under the Public Service Regulations.

This Superior Staff has been, since 1945, largely recruited from Commonwealth Scholarship holders, with a few officers nominated by the State and provided with an allowance for the period of two years at the School.

Under the direction of the Board of Higher Forestry Education, there have been changes in the curriculum to include more intensive training in botany, soils, and chemistry during University time, and readjustments have been made at the Australian Forestry School to synchronise with these changes.

Since 1945 greater attention has been paid to the training of the general staff appointed under the Forests Act, and overseers and employees under Arbitration Court awards.

Special short schools and camps are held annually for this purpose, and particularly for training officers and men in the latest developments in fire control.

The Department also conducts schools for fallers, primarily to supply men for the timber industry. Schools for sawmill operatives are mooted.

(ii) *Research.*

In the field of research there has been considerable progress made. The Commonwealth Scientific and Industrial Research Organisation, Division of Forest Products, has done a great deal of valuable work on the utilisation side, while the State Service has undertaken a series of projects in silviculture, both fundamental and technological. In this connection, in conjunction with the Commonwealth Forestry and Timber Bureau, a Forests Research Laboratory has been established at Dwellingup for work in the jarrah (*eucalyptus marginata*) forest and a further laboratory at Busselton is envisaged for detailed study of exotic conifers.

Research projects under way include the following :—

*Geology.*—Soils of forest areas generally, with special detailed studies where warranted.

*Ecology,* with particular reference to fire damage in stand complexes, including detailed study of soil organisms, litter and its breakdown, cyclic nutrients, recovery, invasions, and reversions.

*Physiology* of indigenous and introduced crops, with emphasis on nutrition.

*Anatomy* and chemical complexes, with particular reference to pigmentation and cell materials such as kinos and tannins.

*Genetics,* covering strain selection and breeding, hybridisation, cytological studies, and edaphic factors in relation to hereditary characteristics.

*Management,* including stocktaking and assessment, thinning, effect of trade operations, and regeneration methods.

Much of the above work is still in a comparatively early stage and subject to the availability of suitable qualified staff, but considerable data has been collected and will be co-ordinated for publication from time to time. Individual papers appear in the Australian Forestry Journal, and Departmental Bulletins are issued from time to time, amongst the more recent of these being—

Bulletin 56—Grading Rules for Jarrah, Karri, and Wandoo—1948.

Bulletin 57—Nutrition of the Pine in W.A., 1926–1949—1950.

A number of papers were prepared for the 1949 Australian Forestry Conference covering—

Fire Control in W.A.

Forest Fire Weather.

Forests of the Drier Areas of W.A.

Grading Rules.

*Pinus Pinaster* in W.A.

Radio Communication in W.A. Forests.

Some Notes on Coastal Sand Drift Fixation in W.A.

Stocktaking in the Jarrah Forest.

The Karri Forest.

It is anticipated that, with the accumulation of equipment and the co-operation of other research organisations and technical establishment, valuable research will be completed in the next few years.

## CHAPTER V.

### Staff and Labour of the Forests.

A statement of the staff and permanent forest labour in force in 1950, showing numbers in (A) State and Communal, and (B) Private Forests in the following categories :—

(A) (i) Superior staff (mainly University trained)—(a) Forest, 14 + 4 probationer graduates ; (b) Research and other specialised services, 4.

(ii) Subordinate forest staff—(a) Trained, 61 ; (b) Untrained, *nil*.

(iii) Clerical, 67.

(iv) Other miscellaneous subordinate staff—Overseers, 48.

(v) Permanent labour force, 457.

Staff generally is considered satisfactory within the limited budget available and could be increased as required from local sources to meet any increased finance. The permanent labour force is in a very different category, and some hundreds of extra men could be absorbed if available, particularly on pine planting projects. There have been no large changes in staff and labour supply during the period 1946–50.

(B) Unknown but considered to be virtually *nil*.

