



1937.

EASTERN AUSTRALIA.

REPORT

ON THE OPERATIONS OF

The Forests Department

FOR THE

YEAR ENDED 30th JUNE, 1937.

BY

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1937.

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LIST OF BOTANICAL NAMES OF LOCAL SPECIES REFERRED TO IN THIS REPORT.

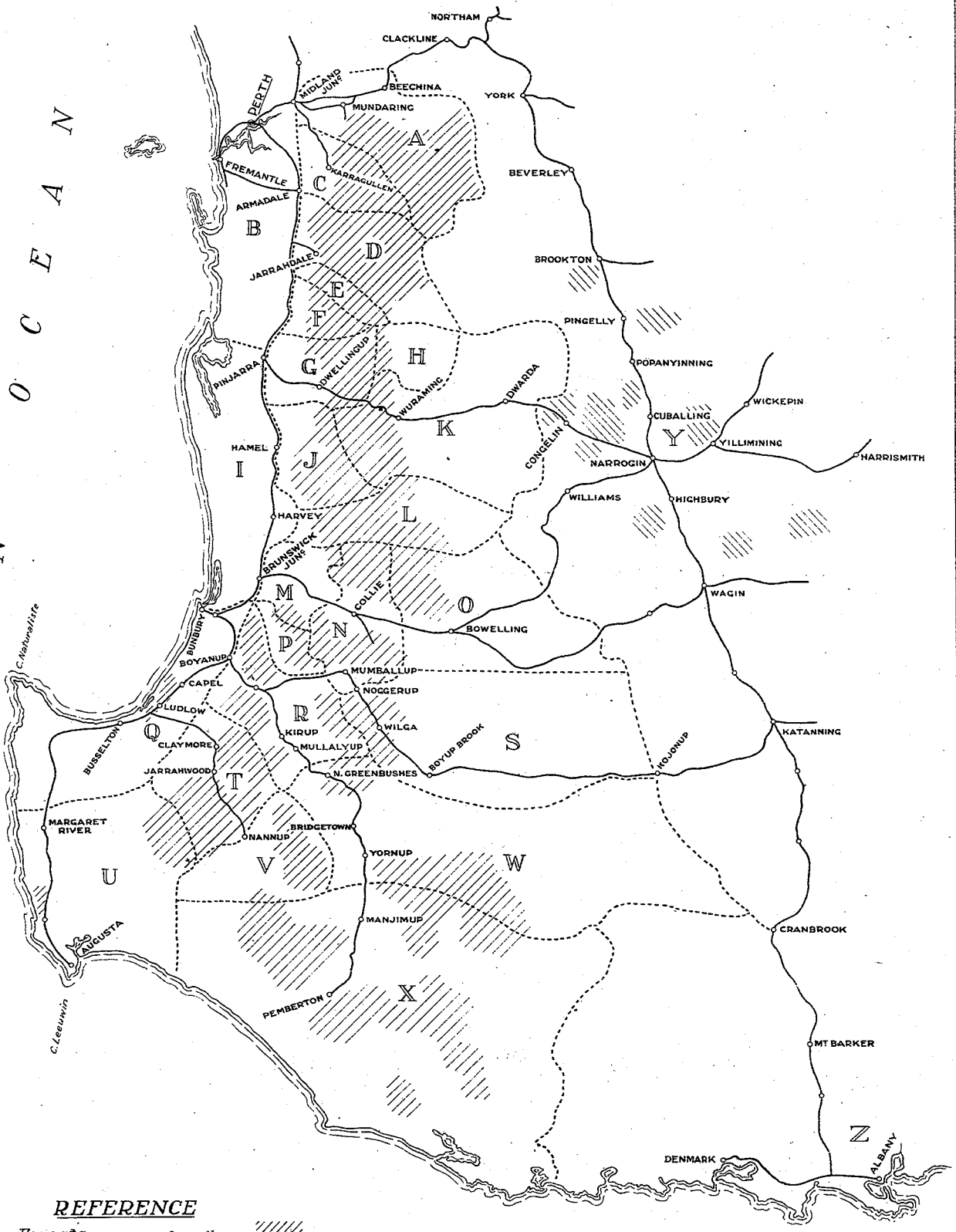
- Jarrah (*Eucalyptus marginata*).
- Karri (*Eucalyptus diversicolor*).
- Wandoo (*Eucalyptus redunca*, var. *elata*).
- Tuart (*Eucalyptus gomphocephala*).
- Marri (*Eucalyptus calophylla*).
- Blackbutt (*Eucalyptus patens*).
- Sandalwood (*Santalum spicatum*).
- Sheoak (*Casuarina Fraseriana*).
- Bullich (*Eucalyptus megacarpa*).
- Banksia (*Banksia verticillata*).
- Brown Mallet (*Eucalyptus astringens*).
- Blackboy (*Xanthorrhoea Preissii*).

KEY TO DISTRICTS AND SUB-DISTRICTS.

| Division. | Headquarters. | District or Sub-district. | |
|-----------|--------------------|---------------------------|---|
| I. | Busselton ... | Q | Busselton. |
| | | U | Margaret River. |
| II. | Mundaring Weir ... | A | Mundaring. |
| | | | |
| III. | Dwellingup ... | G | Dwellingup. |
| | | F | Huntly. |
| | | K | Wuraming. |
| | | H | Duncan's. |
| IV. | Collie ... | N | Collie. |
| | | M | Worsley. |
| | | O | Muja. |
| | | P | Wellington. |
| V. | Kirup ... | R | Kirup. |
| | | S | Noggerup. |
| | | W | Bridgetown. |
| | | V | Nannup. |
| VI. | Manjimup ... | T | Jarrahwod. |
| | | X | Manjimup. |
| VII. | Narrogin ... | Y | Narrogin and balance of Crown Lands in Agricultural Area. |
| | | | |
| VIII. | Kelmscott ... | D | Jarrahdale. |
| | | C | Karragullen. |
| | | E | Solus. |
| IX. | Perth ... | B | Metropolitan. |
| | | Z | Albany. |
| X. | Harvey ... | J | Willowdale |
| | | I | Hamel. |
| | | L | Mornington. |

(See map on opposite page.)

I N D I A N O C E A N



REFERENCE

- State Forests ——— shown thus
- Timber Reserves—Mallet " "
- District Boundaries ——— " "

Forests Department,
Perth, 7th September, 1937.

The Honourable Minister for Forests.

Sir,

I have the honour to transmit herewith my Report on the operations of the Department for the year ended 30th June, 1937.

I have the honour to be,

Sir,

Your obedient servant,

S. L. KESSELL,

Conservator of Forests.

Annual Report on the Operations of the Forests Department for the year ended 30th June, 1937.

INTRODUCTORY REMARKS.

Local and export markets for sawn timber and other classes of forest produce remained buoyant throughout the twelve months under review. The volume of sawn and hewn timber produced amounted to 13,710,500 cubic feet, valued at approximately £1,800,000. Of this quantity, 5,673,000 cubic feet, valued at £700,000, were exported and the balance used within the State. Each of these figures shows a small increase when compared with similar returns for the previous year.

The sawmilling industry in the Jarrah and Karri forests has reached a stage when no immediate increase in the volume of timber produced annually is to be anticipated. By careful management of our remaining forest resources it is hoped to stabilise the production of sawn timber, and any considerable increases in employment in forest industries can be looked for only from the development of markets for other classes of forest produce which have been neglected in the past. An interesting development along these lines is the establishment of two factories for the production of tannin extract from Wandoo timber. These plants are now using approximately 3,000 tons of poor quality Wandoo logs monthly and employing in forest and factory some 95 men.

A regional survey of the Jarrah forests of the State, associated with detailed studies of the growing stock on a number of forest types, is providing necessary data for the first periodic revision of the General Working Plan for Jarrah, which is due next year. Two matters of outstanding importance which are emerging from these investigations are, firstly, the serious deficiency in these forests of trees which may be described as semi-mature, and, secondly, the extent of damage from fires occurring every year in areas of virgin and cut-over forest which have not yet been brought within the scope of the fire control organisation of the Department.

The immature growing stock on all accessible areas of Jarrah forest has been seriously depleted by an extensive trade in past years in poles, piles and hewn beams. In the course of these operations the best trees of the younger age classes of the virgin forest were culled out and many of the remaining immature trees have been ruined by fire. Fortunately there still remains distributed throughout the forest a proportion of well developed trees which measurements over a period of years have shown to be capable of continued fast growth. The growth rate of these semi-mature Jarrahs is related to the type, shape and extent of crown rather than to the size of the bole, and given protection from fire following the removal of competing trees they will show an annual volume increment of over two per cent. Under tree marking control of logging operations steps are being taken to preserve a reasonable proportion of these faster growing trees to provide timber for a second cycle of cutting while the younger age classes, which have become established since exploitation first commenced are growing to milling size. In addition to the value of these growing trees in assisting to maintain the annual cut on a sustained yield basis, the detailed assessment and growth studies referred to above have indicated that they may have an important influence on the development of the new crop. Despite the reputation which Jarrah shares with other Eucalypts of being a strong light-demander, the evidence now available appears to show that Jarrah regrowth in its early years grows straighter and stronger under a light shelterwood or in comparatively small openings in a selection forest than it does on extensive openings in the forest from which practically every member of the original stand has been removed.

The difficulty referred to in previous reports of finding suitable forest for the operations of sleeper cutters is becoming more acute, and it is very desirable that men who have followed this avocation during recent years should use every endeavour to find other avenues of employment. Small sleeper mills, which are now working over areas on both Crown lands and private property which have been worked over several times by sleeper hewers and left as cut out, will assist in maintaining the production of sleepers for export for some years to come.

The area of forest regenerated, planted and brought under intensive management by the opening up of roads, tracks and firelines is less than that dealt with during the peak period of unemployment relief work last year, but, nevertheless, it represents an important advance in reforestation. During the year 56,386 acres of Jarrah and 2,254 acres of Karri were subdivided into compartments and regenerated by natural means, bringing the total area of regenerated Jarrah forest to 344,871 acres and of regenerated Karri forest to 18,356 acres. Further plantations of Mallet were established by spot sowing on 1,487 acres, resulting in the establishment of a total area of 9,670 acres of plantations of this species during the past ten years.

The extension of regeneration operations for a further year on a similar scale will bring reforestation work on State Forests abreast of logging operations. While it will be necessary to provide a considerable labour force for tending and protective measures over the very large areas of young forest established during recent years, the forests for a period will not offer scope for the employment of the same large number of unskilled relief workers as in recent years.

The area of softwood plantations was increased to 10,898 acres by the planting of a further 638 acres of pines. The production of locally grown pine timber, most of which was obtained as thinnings from departmental plantations, amounted to approximately 50,000 cubic feet for the year. This timber was cut from small pine trees in the young stands and was used principally for cases in the metropolitan area.

The past fire season was the most severe recorded since the Fire Weather Research Station was established at Dwellingup five years ago. The fire control organisation of the Department stood the test very well, and only minor losses were sustained by damage to regenerated or planted forest. The severe fires which received such wide publicity in February last all occurred in districts where the Department had no organisation or resident staff, or where preliminary measures only had been initiated with the object of developing a control organisation in subsequent seasons.

The damage caused by severe summer fires to the forest and to the adjoining farming community represents a serious loss to the State every year. The worst fires develop from the linking up, during spells of very hot weather, of small fires set by travellers and graziers, which are allowed to burn for days and weeks in back paddocks and unoccupied timber areas. The Department is proceeding with the work of opening up all large blocks of State Forest by clearing and grading tracks which will facilitate patch burning in the spring and autumn months, and will allow rapid access for the suppression of outbreaks in the height of summer, but the success of these measures depends on the co-operation of the surrounding settlers not only by refraining from lighting fires in the prohibited burning period, but also in active fire fighting measures.

The Department has shown with its own employees what small gangs of trained men with proper equipment can accomplish in suppressing fires. At the same time, great importance is attached to the help received from persons residing in and around the forest. Considerable progress has been made during the past two years in the extension of departmental telephone systems to the homes of farmers on the boundaries of State Forest who have volunteered to assist in the location and suppression of fires. The extent of recent developments to provide for the early detection of fires and a network of communication to assist in the quick assembly of fire-fighting forces is shown by the following figures. The Department now operates 725 miles of telephone line linking up 230 forest offices, houses and farms, with 16 fully equipped lookout towers, and 19 subsidiary towers and houses erected on high points. It is hoped that legislation may be passed at an early date which will further assist in mobilising the resources of a district to combat this annual cause of loss and suffering.

A brief report on the administration of the Timber Industry Regulation Act, 1926, is included as Appendix 3 to this Report. Sawmillers generally have co-operated in giving effect to the requirements of this Act, which is designed to protect workers in the industry from injury and disease. One weakness in the Act, which has become apparent with the rapid increase in the number of small sleeper mills, is the omission of any provision requiring sawmill owners or operators to register their plants before commencing operations. Consequently sawmills are frequently erected and working on private property before the Department is aware of their existence, which may first come under notice owing to a serious accident. If inspected before work was started, the causes of a number of these accidents might be eliminated. With this object in view, it would appear very desirable to have the Act extended to require compulsory registration of sawmilling plants when construction is commenced.

CHAPTER I.

THE FOREST AREA.

(1) State Forests (Forests Act, 1918).

Existing State Forests were amended by the addition of 33,859 acres and by the excision with the approval of Parliament of 492 acres. Of the area added 29,222 acres were in the Mallet habitat. The total area of State Forests is now 3,172,029 acres, particulars of which are set out in the following statement:—

| | June, 1936. | June, 1937. | Increase or Decrease. |
|---------------------------------|-------------|-------------|--------------------------|
| | acres. | acres. | acres. |
| Jarrah | 2,557,163 | 2,561,379 | +4,216 |
| Karri | 151,782 | 151,782 | ... |
| Jarrah and Karri (Mixed) | 370,089 | 370,018 | —71 |
| Tuart | 5,939 | 5,939 | ... |
| Tingle Tingle | 10,774 | 10,774 | ... |
| Karri and Tingle (Mixed) | 13,895 | 13,895 | ... |
| Sandalwood | 1,930 | 1,930 | ... |
| Pine Planting | 4,842 | 4,842 | ... |
| Mallet | 22,248 | 51,470 | +29,222 |
| Total | 3,138,662 | 3,172,029 | +33,367 |

(2) *Timber Reserves (Forests Act, 1918).*

Three additional timber reserves, comprising 17,810 acres were declared during the year. A reserve at Big Bell accounted for 16,950 acres and the balance of 860 acres was contained in two small reserves south of Nannup. One reserve of 12,800 acres was revoked, and the areas of several other reserves were adjusted. At the close of the year the total area of reserves was 1,766,685 acres.

The present position of the reserves is set out in the following statement:—

| | June, 1936. | June, 1937. | Increase. |
|--------------------------------------|------------------|------------------|--------------|
| | acres. | acres. | acres. |
| Jarrah | 36,956 | 37,816 | 860 |
| Wandoo | 9,669 | 9,669 | ... |
| Sandalwood | 27,105 | 27,105 | ... |
| Pine Planting | 25,951 | 25,951 | ... |
| Mallet | 677 | 677 | ... |
| Mining Timber, Firewood, etc. | 1,664,247 | 1,665,467 | 1,220 |
| Total | 1,764,605 | 1,766,685 | 2,080 |

CHAPTER II.

REVENUE.

The revenue of the Department amounted to £164,888, compared with £143,158 for the previous year.

The rebates of 20 per cent. on royalties payable on log timber, and 25 per cent. on inspection fees on all sawn timber, including sleepers, and on hewn sleepers for export, were continued.

In addition a rebate of 2s. 6d. per load in the square was allowed on sawn timber exported beyond Australia during the period 1st July to 31st December, 1936. The amounts so rebated were—

| | |
|--------------------------------|----------------|
| On Log Timber | £20,813 |
| „ Sawn Timber exported | 4,344 |
| „ Inspection Fees | 1,933 |
| | <u>£27,090</u> |

Log royalty for the year amounted to £98,182, an increase of £9,703 over the previous year's figures. Sandalwood revenue showed an increase of £6,508 over last year's receipts.

PRINCIPAL SOURCES OF REVENUE FOR THE PAST TWO YEARS.

| Year. | Royalties. | | Inspection Fees. | Sandalwood. | Firewood and Fence Posts. | Miscellaneous. | Total. |
|----------------|----------------------|--------------|------------------|-------------|---------------------------|----------------|-----------|
| | Logs for Sawmilling. | Hewn Timber. | | | | | |
| 1935-36 | £ 88,479 | £ 8,930 | £ 6,376 | £ 22,580 | £ 5,556 | £ 11,237 | £ 143,158 |
| 1936-37 | 98,182 | 9,216 | 6,913 | 29,087 | 5,700 | 15,790 | 164,888 |

TIMBER PRODUCTION.

PRODUCTION OF TIMBER FOR YEAR ENDED 30TH JUNE, 1937 (EXCLUSIVE OF MINING TIMBER, FIREWOOD AND PILES AND POLES).

| Forest Division No. | | MILL LOGS. | | | | | HEWN TIMBER. | | | | Grand Total. | |
|---------------------|------------------|------------|-----------|------------|-------------|------------------------------|--------------|----------|----------------|----------------|--------------|----------------|
| | | Jarrah. | Karri. | Other. | Total. | | Jarrah. | Other. | Total. | | In Log. (10) | In Square (11) |
| | | | | | In Log. (4) | Recovery of Sawn Timber. (5) | | | In Square. (6) | In Square. (7) | | |
| | | cub. ft. | cub. ft. | cub. ft. | cub. ft. | cub. ft. | cub. ft. | cub. ft. | cub. ft. | cub. ft. | cub. ft. | cub. ft. |
| 1 | Crown Lands ... | 953,614 | 11,378 | 2,670 | 967,662 | 317,788 | 101,941 | 509,705 | 101,941 | 1,477,367 | 419,729 | 419,729 |
| | Private Property | 88,293 | 21,065 | 35,091 | 144,449 | 48,872 | 83,884 | 419,420 | 83,884 | 563,869 | 132,756 | 132,756 |
| 2 | Crown Lands ... | 6,098 | ... | 31,974 | 38,072 | 13,325 | ... | ... | ... | 38,072 | 13,325 | 13,325 |
| | Private Property | 40,876 | ... | 400 | 41,276 | 14,447 | ... | ... | ... | 41,276 | 14,447 | 14,447 |
| 3 | Crown Lands ... | 6,824,471 | ... | 2,797 | 6,827,268 | 2,389,544 | 38,984 | 1,304 | 201,440 | 40,288 | 7,028,708 | 2,429,832 |
| | Private Property | 517,625 | ... | 412,805 | 930,430 | 226,800 | 95,343 | 17,785 | 565,640 | 113,128 | 1,496,070 | 339,928 |
| 4 | Crown Lands ... | 3,016,654 | ... | 251,878 | 3,268,532 | 1,068,364 | 113,946 | 9,671 | 618,085 | 123,617 | 3,886,617 | 1,191,981 |
| | Private Property | 633,448 | ... | 247,791 | 881,239 | 233,730 | 120,063 | 15,388 | 677,255 | 135,451 | 1,558,944 | 369,181 |
| 5 | Crown Lands ... | 4,011,467 | ... | 12,398 | 4,023,865 | 1,408,353 | 154,293 | 5,316 | 798,045 | 159,609 | 4,821,910 | 1,567,962 |
| | Private Property | 204,636 | ... | 17,877 | 222,513 | 63,857 | 494,431 | 118,322 | 3,063,765 | 612,753 | 3,286,278 | 676,610 |
| 6 | Crown Lands ... | 939,837 | 5,338,918 | 6,621 | 6,285,376 | 1,767,982 | 95,736 | 474 | 481,050 | 96,210 | 6,766,426 | 1,864,192 |
| | Private Property | 1,430 | 20,473 | ... | 21,903 | 5,814 | 684,414 | 11,264 | 3,478,390 | 695,678 | 3,500,293 | 701,492 |
| 7 | Crown Lands ... | 100 | ... | 264,625 | 264,725 | 52,960 | 489 | 18,648 | 95,685 | 19,137 | 360,410 | 72,097 |
| | Private Property | 4,770 | ... | 266,890 | 271,660 | 54,332 | 613 | 31,895 | 162,540 | 32,508 | 434,200 | 86,840 |
| 8 | Crown Lands ... | 1,678,738 | ... | 71,843 | 1,750,581 | 612,703 | 452 | ... | 2,260 | 452 | 1,752,841 | 613,155 |
| | Private Property | 915,558 | ... | 3,874 | 919,432 | 279,815 | 55,011 | ... | 275,055 | 55,011 | 1,194,437 | 334,826 |
| 9 | Crown Lands ... | 84,477 | 6,660 | 36,133 | 127,270 | 44,012 | 51,681 | 11,995 | 318,380 | 63,676 | 445,650 | 107,688 |
| | Private Property | 1,208,382 | 29,480 | 252,365 | 1,485,227 | 511,198 | 313,109 | 125,174 | 2,191,415 | 438,283 | 3,676,642 | 949,481 |
| 10 | Crown Lands ... | 5,050,138 | ... | 57,520 | 5,107,658 | 1,787,680 | 1,853 | 1,792 | 18,225 | 3,645 | 5,125,833 | 1,791,325 |
| | Private Property | 88,045 | ... | 24,126 | 112,171 | 26,053 | 7,682 | ... | 38,410 | 7,682 | 150,581 | 33,735 |
| Totals | Crown Lands ... | 22,565,594 | 5,356,956 | 738,459 | 28,661,009 | 9,462,711 | 559,375 | 49,200 | 3,042,875 | 608,575 | 31,703,884 | 10,071,286 |
| | Private Property | 3,698,063 | 71,018 | 1,261,219 | 5,030,300 | 1,464,918 | 1,854,550 | 319,823 | 10,871,890 | 2,174,378 | 15,902,190 | 3,639,296 |
| Grand Totals | ... | 26,263,657 | 5,427,974 | *1,999,678 | 33,691,309 | 10,927,629 | 2,413,925 | †369,028 | 13,914,765 | 2,782,953 | 47,606,074 | 13,710,582 |

Figures in columns (1), (2), (3), (4), (8), and (10) are in the round, based on full volume measure. Figures in columns (5), (6), (7), (9), and (11) are the volumes of sawn or hewn timber measured in the square.

* Includes 1,672,682 cubic feet Wandoo; 136,705 cubic feet Sheoak; 84,354 cubic feet Tuart; 48,291 cubic feet Blackbutt; 46,058 cubic feet Pine; 6,621 cubic feet River Banksia; 2,742 cubic feet Marri; 2,225 cubic feet Bullich.

† Includes 366,837 cubic feet Wandoo; 2,191 cubic feet Yellow Tingle Tingle.

SAWMILLING AND HEWING.

Since 1932, which was the worst year of the depression so far as the timber trade was concerned, a steady improvement in the industry has been maintained. The volume of sawn and hewn timber produced last year amounted to 13,710,500 cubic feet, valued at approximately £1,800,000. This production represents an increase of 577,500 cubic feet on the figures for the previous year. Sawmills have operated at full capacity throughout the year. Sixty-five mills have drawn their supplies of log timber from Crown lands and approximately 50 small mills principally engaged in cutting railway sleepers and fruit cases have operated on private property. The total intake of logs to all mills for the past twelve months amounted to 33,691,300 cubic feet, or 10 per cent. more than for the previous year. Of this quantity 28,661,000 cubic feet came from Crown lands. Although there was a small increase in the production of log timber from Crown lands amounting to 650,000 cubic feet, it is interesting to note that most of the increased log supplies came from private property which during the past year supplied 5,030,300 cubic feet. This is more than double the quantity obtained from this source during the previous twelve months. Wandoo timber, which is being more extensively used for sleepers and bridge timber, accounted for 45 per cent. of the increased log supply from private property.

A factor responsible for the increased production of timber from private lands is the development during recent months of a number of small portable mills cutting principally sleepers which are operating over forest frequently of indifferent quality which had been cut over in the past both by large mills and gangs of sleeper hewers. These mills, which usually obtain their power from a portable crude oil engine, can be shifted as occasion warrants with very little loss of time. Log supplies are cut into sleeper lengths in the bush and transported to the mill in motor trucks. The development of these mills will assist to maintain our present sleeper output for a much longer period than appeared possible a year or two ago.

The production of hewn timber last year was slightly below the production for the two previous years. The quantity produced amounted to approximately 2,783,000 cubic feet, including 2,413,900 cubic feet of Jarrah and 366,800 cubic feet of Wandoo. Seventy-eight per cent. of the hewn timber obtained last year came from private property.

Arrangements were made with the Railway Department to purchase a small quantity of hewn Yellow Tingle Tingle sleepers from the Nornalup district, with a view to testing out its suitability as a sleeper timber.

Approximately 820 hewers were employed throughout the year in the production of railway sleepers.

The respective quantities of sawn and hewn timber, measured in the square, obtained from Crown lands and private property for the past two years are set out in the following statement:—

| Year. | From Crown Lands. | | | From Private Property. | | Estimated Value of Timber obtained. |
|----------------|----------------------------------|-----------------------|---------------------|----------------------------------|-----------------------|-------------------------------------|
| | Sawn Timber other than Sleepers. | Sawn Sleepers. | Hewn Timber. | Sawn Timber, including Sleepers. | Hewn Timber. | |
| 1935-36 | cub. ft. 7,788,648 | cub. ft. 1,618,844 | cub. ft. 678,025 | cub. ft. 857,903 | cub. ft. 2,189,633 | £ 1,700,000 |
| 1936-37 | 8,242,417 | 1,220,294 | 608,575 | 1,464,918 | 2,174,378 | 1,800,000 |

TIMBER EXPORTS.

The quantity of timber exported from the State during the year was 5,673,900 cubic feet, or 41 per cent. of the total sawn and hewn timber produced. This timber was valued at approximately £700,000, being £20,000 above the value of the previous year's export.

Although the export of railway sleepers has again shown a slight falling off, it is satisfactory to note that there has been a decided increase in the export of other undressed timber, indicating that the value of our hardwoods for a wide range of purposes other than sleepers is receiving wider recognition in the Eastern States of the Commonwealth and Overseas.

The principal market for our hardwoods during the past year was in the Eastern States of Australia, where timber to the value of £222,602 was sold. Exports to the United Kingdom amounted to £147,878 and to China £95,236, the latter being by far the largest importer of Jarrah sleepers for the year.

The principal buyers during the past two years and the value of the timber purchased by each are set out hereunder:—

| | Year ending 30/6/37. | Year ending 30/6/36. |
|-----------------------------------|-------------------------|-------------------------|
| | £ | £ |
| Eastern States of Commonwealth .. | 222,602 | 176,462 |
| United Kingdom | 147,878 | 119,025 |
| China | 95,236 | 58,309 |
| South African Union | 89,350 | 125,375 |
| Ceylon | 35,272 | 9,899 |
| Iraq | 27,791 | 21,608 |
| Egypt | 25,672 | 86,388 |
| New Zealand | 24,192 | 29,218 |

A detailed statement of the exports of timber, wood manufactures, tanning barks, sandalwood and essential oils is given in Appendix 2A to this report. The statement does not take into account the quantity of timber used for the export fruit industry, the cases for which are valued at approximately £40,000 per annum.

TIMBER IMPORTS.

Timber and wood manufactures to the value of £257,164 were imported during the year. These figures are £28,700 in excess of the figures for the previous year. Two-thirds of the imports are stated to have been of Eastern States origin and included undressed timber to the value of £48,370, plywood and veneers £46,955, barrels and casks £29,803 and furniture £22,687. The value of timber imported from Canada amounted to £26,952, the United States of America £19,590 and Sweden £13,517.

A detailed statement of imports is given in Appendix 2B to this report.

TIMBER INSPECTION.

Sawn and hewn timber amounting to 4,337,298 cubic feet and representing 32 per cent. of the total production were submitted to the Department for inspection during the year. Eighty-eight per cent. of this quantity consisted of sawn and hewn railway sleepers for local and export orders, nearly two-thirds of which came from private property.

Piles and poles totalling 63,685 lineal feet and 64,000 lineal feet of flooring boards were also inspected.

The revenue received for timber inspection amounted to £6,913.

SANDALWOOD.

The five year agreement controlling the export of Sandalwood from the States of Western Australia and South Australia expired on the 20th July, 1937. The parties to the Agreement were the West Australian Government, the Australian Sandalwood Co., Ltd., the South Australian Government, and the Co-operative Sandalwood Company (South Australia), Ltd. The Committee appointed under this Agreement to manage and regulate the Sandalwood export business in the two States and the selling policy in China accomplished its main purpose in liquidating surplus stocks within the five year period while maintaining regular pulling operations.

In view of the satisfactory results achieved by single unit control of all Sandalwood exports from South and Western Australia, arrangements were recently made for an extension of the agreement for a further period expiring on the 31st October, 1940, subject to minor amendments and safeguards arising out of the changed conditions.

With the liquidation of surplus stocks it has been possible to increase the orders for new pulling with the result that during the past year 271 orders were issued for the pulling of 2,176 tons of wood from Crown lands. The wood supplied was of good average quality and the Department was only called upon to inspect and assess the value of approximately 350 tons which owing to poor cleaning called for small reductions in the price payable to the getters. After allowing for these reductions the average price f.o.r. Fremantle paid to the pullers of Sandalwood logs was £15 18s. 4d. per ton.

Licenses were issued under the provisions of the Sandalwood Act, 1929, to twenty-one persons for the disposal of 55 tons of Sandalwood from private property.

The quantity of Sandalwood obtained from all sources during the year ended 30th June, 1937, is set out in the following statement:—

| Locality. | For Oil Distillation within the State. | For Export. |
|---|---|----------------|
| | tons. | tons. |
| From Crown Lands South of 26th parallel of South Latitude | 377 | 1,884 |
| From Crown Lands North of 26th parallel of South Latitude | 27 | ... |
| From Private Property | ... | 44 |
| Total | 404 | 1,928 |

The Sandalwood exported during the year amounted to 2,513 tons as compared with 1,592 tons during the previous year.

Sandalwood for Oil Distillation.

Four hundred and four tons of Sandalwood were used locally in the distillation of oil. With the exception of 27 tons of wood obtained from the North-West the wood used consisted of roots and butts sawn from the export logs upon their arrival at Fremantle. Production figures are not available but the quantity of Sandalwood oil exported was 32,139 lbs.

OTHER FOREST PRODUCE.

Mining Timber and Firewood.

The consumption of timber and firewood for mining requirements increased considerably during the year due to the number of mines which are now coming into production. In the Southern Cross district alone the firewood consumed by the mines increased from 5,600 tons in 1935-36 to 20,700 tons in 1936-37 and similar increases were recorded in other districts. The estimated total production of firewood on the Goldfields during the year amounted to 558,000 tons. Mining timber used on the Goldfields totalled 21,700 tons and showed an increase of 30 per cent. when compared with the production during the year ended June, 1936.

Practically the whole of the firewood and mining timber used on the Goldfields is obtained under licenses or permits issued by the Department giving exclusive cutting rights over specified areas many of which are within the boundaries of large pastoral areas. Operations have been conducted in a very satisfactory manner and in only a few instances have minor differences arisen between the timber cutters and the pastoralists which have been adjusted by the Department to the satisfaction of both parties.

In order to prevent the complete denudation of any Mulga area and protect a sufficient number of trees to insure ground cover, top feed for stock and seed trees, it has been decided to restrict the operations of firewood cutters by increasing the minimum girth of Mulga trees which can be felled under their licenses and excluding from their operations any section which is not carrying more than seven healthy growing trees over four feet in height to the square chain. On country being cut over they are required to leave a minimum of seven such trees to the square chain.

The classification of vegetation types on the Murchison Goldfields with a view to locating belts of timber suitable for mining timber, firewood, charcoal burning, etc., has been continued and an area of 1,364,000 acres in the Wiluna-Meekatharra districts has been classified.

During the year the W.A. Goldfields Firewood Supply, Ltd., a company that has for many years been supplying the bulk of the firewood and mining timber to the mines of Kalgoorlie and Boulder, secured cutting rights under permit over an area of virgin bush about 50 miles south-east of Lakeside. This company has in recent years operated from Kurrawang and drawn its wood supplies from Crown lands south of Calooli and about 100 to 120 miles distant from Kalgoorlie. The company is now engaged in laying tram lines into their new area and expect at an early date to be drawing the whole of their supplies from this source.

Apart from sawn blocks obtained from mill waste, 72,000 tons of firewood were obtained under permits from Crown lands and supplied to the Metropolitan area during the year.

Piles and Poles.

Piles and poles obtained during the year from Crown lands numbered 6,066 and totalled 128,185 lineal feet. A further quantity of 105,214 feet were reported to the Department as having been obtained from private property.

No accurate figures are available regarding the total quantity of piles and poles obtained annually, owing to the fact that a large percentage of the total production is cut from private property by public authorities by whom no returns are submitted.

Tanning Barks and Extracts.

Two thousand one hundred and nineteen tons of mallet bark were obtained during the year from Crown lands and private property, and eleven tons of wattle bark were obtained from Crown lands.

The quantity of tanning bark exported amounted to 1,425 tons, valued at £14,491.

About two years ago Industrial Extracts, Ltd., a local company, established a factory at Belmont and commenced the manufacture on a commercial scale of a tanning extract from wandoo timber. This factory has been producing up to 25 tons of extract per week and employing 35 men. The success of the venture resulted in the company establishing a similar factory at Boddington with a capacity of about 2½ times that of the Belmont plant. The new plant, which employs approximately fifty men, commenced production in May last. The extract produced is supplying a large proportion of the Australian trade, where it is displacing imported extracts, and the balance is being exported to a number of different countries.

Supplies of raw material are being obtained from private property from trees useless for hewing or sawmilling purposes which were previously burnt in the process of clearing for pasture.

The quantity of wandoo timber used by the company during the past year amounted to 14,870 tons.

FOREST OFFENCES.

During the past year sixty-eight forest offences were reported by officers of the Department. Most of the offences were of a minor nature and in only six cases was it considered necessary to take proceedings under the Forests Act against the offenders. In each of these cases a conviction was recorded and fines, costs and damages totalling £65 were imposed. The remainder of the offences were dealt with by the collection of royalties, damages or the confiscation and sale of forest produce illegally obtained. Royalties, etc., received by the Department in this way totalled £378.

Approximately 33 tons of sandalwood were confiscated and sold for various breaches of the regulations, and after making compassionate payments to the pullers totalling £295 to cover costs incurred by them in connection with carting, loading, freight and other charges on this wood, the balance of the proceeds from the sale of the wood amounting to £380 was paid into Consolidated Revenue.

FOREST PRODUCE NOT ELSEWHERE INCLUDED IN PRODUCTION TABLES, OBTAINED DURING YEAR ENDED 30TH JUNE, 1937, AND REPORTED TO THE DEPARTMENT.

| Description of Forest Produce. | SOUTH-WEST DIVISION AND AGRICULTURAL AREAS. | | | | | | | | | | Northern, Central and Eastern Goldfields. | Total. |
|---|---|--------|--------|-------|--------|-------|--------|--------|--------|--------|---|------------------|
| | Forest Division No. | | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| Mining Timber tons | ... | 8 | ... | 1,081 | ... | ... | ... | ... | 113 | ... | 21,742 | 22,944 tons |
| Sleepers for Goldfields Wood Lines cubic ft. | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 45,316 | 45,316 c. ft. |
| Firewood including Charcoal ... tons | 155 | 15,126 | 89 | 82 | 682 | 136 | 62 | 42,171 | 29,920 | 979 | 186,504 | 275,906 tons |
| Mining Firewood " | ... | ... | ... | 825 | ... | ... | ... | ... | ... | ... | 371,940 | 372,765 tons |
| Piles and Poles* lin. ft. | 5,278 | 16,450 | 48,101 | 8,102 | 51,629 | 6,478 | 13,509 | 47,294 | 18,763 | 17,795 | ... | 233,399 lin. ft. |
| Fencing Posts and Rails ... No. | 1,612 | ... | ... | ... | 7,862 | 1,420 | 5,120 | 2,731 | 557 | 200 | ... | 19,502 No. |
| Blackboy tons | ... | ... | ... | ... | ... | ... | ... | ... | 509 | ... | ... | 509 tons |
| Mallet Bark* " | ... | ... | ... | ... | ... | ... | 2,119 | ... | ... | ... | ... | 2,119 tons |
| Wattle Bark " | ... | 11 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 11 tons |
| Kingia Fibre " | ... | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... | 1 ton |
| Stone c. yds. | 16 | ... | ... | ... | ... | ... | ... | 4,255 | ... | ... | ... | 4,271 c. yds. |
| Boronia Megastigma ... lbs. | ... | ... | ... | ... | ... | ... | ... | ... | 1,531 | ... | ... | 1,531 lbs. |
| Wandoo Timber for Tanning Extract† | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 14,870 tons |

* From Crown lands and private property. † From private property.

NOTE.—Except where otherwise stated, this statement includes only forest produce obtained from Crown lands under permit or license.

CHAPTER III.

(1).—EXPENDITURE.

The expenditure on general administration, which includes both office and field work arising out of the enforcement of the Forests Act and Regulations, and such direct revenue producing activities of the Department as timber inspection, amounted to £25,453, as compared with £22,289 last year.

The expenditure on reforestation works carried out as unemployment relief measures during the year amounted to £122,010 and of this amount £50,000 was contributed by the Commonwealth Government under the Commonwealth Aid to Forestry Scheme. A sum of £19,065 was also spent on "C" Class relief work. Under these various schemes approximately 625 men were provided with employment in the forest throughout the year.

Three-fifths of the net revenue of the Department, exclusive of revenue derived from sandalwood, produced £46,594 during the past year, and this has been credited to the Reforestation Fund in accordance with the provisions of Section 41 of the Forests Act, 1918.

The following statement shows the position of the Fund at 30th June, 1937:—

| | | |
|---|--------|----------------|
| Revenue for year 1936-37 | £ | 164,883 |
| Less Sandalwood | | 29,087 |
| | | <u>135,801</u> |
| Consolidated Revenue Fund Expenditure | £ | 25,453 |
| Less Sandalwood Expenditure | £1,725 | |
| " Timber Industry Regulation—Salaries | 654 | |
| " Timber Industry Regulation—Incidentals | 435 | |
| | | <u>2,814</u> |
| | | 22,639 |
| Interest on Loans | | 32,211 |
| Sinking Fund | | 1,611 |
| Special Acts | | 1,180 |
| Audit Fees | | 96 |
| Compassionate Allowance, Account late H. Clifford | | 408 |
| | | <u>58,145</u> |
| Net Revenue | | <u>£77,656</u> |
| Reforestation Fund— | | |
| Balance at 30th June, 1936 | | 78,364 |
| Three-fifths Revenue transferred | | 46,594 |
| Direct Credits | | 4,451 |
| | | <u>51,045</u> |
| | | £129,409 |
| Expenditure 1936-1937 | | <u>48,897</u> |
| Balance | | <u>£80,512</u> |

(2.)—REFORESTATION OPERATIONS.

(A)—FOREST MANAGEMENT.

SUMMARY OF PERMANENT ESTABLISHMENT AND NEW WORKS CARRIED OUT DURING YEAR.

| DIVISION. | | District. | ROADS. | | FIRELINES. | | TELEPHONE LINES. | | HOUSES. | | SURVEY. | |
|-----------|------------------|------------------|---------------------------|---|-------------------------------------|---|-------------------------------------|------------------------------|--------------------------|------------------------|--------------------------|------------------|
| No. | Headquarters. | | Cleared 1936- 1937. | Total miles cleared & main- tained. | Miles cleared, 1936- 1937. | Total miles cleared & main- tained. | Miles erected, 1936- 1937. | Total mileage erected. | Built, 1936- 1937. | Total No. built. | Topo- graph- ical. | Assess- ment. |
| | | | miles. | miles. | miles. | miles. | miles. | miles. | No. | No. | miles. | acres. |
| 1 | Busseton ... | Busseton ... | 2 | 10 | ... | 18 | 6 | 23 | ... | 10 | ... | ... |
| 2 | Mundaring ... | Mundaring ... | 83 | 148 | 5 | 46 | ... | 45 | ... | 15 | ... | ... |
| 3 | Dwellingup ... | Dwellingup ... | 27 | 152 | 14 | 188 | ... | ... | ... | 16 | ... | ... |
| | | Wuraming ... | 8 | 124 | 8 | 163 | ... | ... | ... | 7 | ... | ... |
| | | Huntly ... | 16 | 109 | 22 | 137 | ... | 95 | ... | 7 | 167 | ... |
| | | Duncans ... | 20 | 109 | 37 | 187 | ... | ... | ... | 4 | ... | ... |
| 4 | Collie ... | Collie ... | 34 | 280 | 45 | 351 | ... | ... | ... | 10 | ... | ... |
| | | Muja ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | | Worsley ... | 6 | 48 | 10 | 62 | ... | 97 | ... | 1 | 204 | ... |
| | | Wellington ... | 41 | 106 | 2 | 59 | 30 | ... | ... | 5 | ... | ... |
| 5 | Kirup ... | Kirup ... | 61 | 228 | 25 | 385 | ... | ... | ... | 11 | ... | ... |
| | | Nannup ... | 34 | 153 | 21 | 209 | ... | ... | ... | 5 | ... | ... |
| | | Noggerup ... | 31 | 48 | 7 | 55 | 9.5 | 110 | ... | 2 | ... | 34,000 |
| | | Bridgetown ... | 9 | 31 | 4 | 41 | ... | ... | ... | ... | ... | ... |
| | | Jarrahood ... | 28 | 110 | 8 | 137 | ... | ... | ... | 7 | ... | 23,000 |
| 6 | Manjimup ... | Manjimup ... | 93 | 176 | 29 | 277 | 9 | 62 | ... | 12 | ... | ... |
| 7 | Narrogin ... | Narrogin ... | 25 | 115 | 53 | 326 | 16.5 | 62 | ... | 10 | ... | ... |
| 8 | Kelmscott ... | Jarrahdale ... | 43 | 224 | 61 | 180 | ... | ... | 2 | 13 | ... | ... |
| | | Karragullen ... | 60 | 370 | 33 | 274 | 31 | 112 | ... | 7 | 225 | 12,000 |
| | | Solus ... | 53 | 182 | 20 | 135 | ... | ... | ... | 1 | ... | ... |
| 9 | Metropolitan ... | Metropolitan ... | ... | ... | ... | ... | ... | ... | ... | 4 | ... | ... |
| | | Albany ... | ... | ... | ... | ... | 8 | ... | ... | ... | ... | ... |
| 10 | Harvey ... | Harvey ... | ... | ... | ... | ... | ... | ... | 2 | 8 | ... | ... |
| | | Willowdale ... | 15 | 114 | 46 | 199 | ... | ... | ... | 9 | ... | ... |
| | | Hoffman ... | 3 | 53 | 51 | 61 | 33 | 108 | ... | 1 | 152 | ... |
| | | Tallanalla ... | 74 | 156 | 56 | 191 | ... | ... | ... | 7 | ... | 500 |
| | | Hamel ... | ... | ... | ... | ... | ... | ... | ... | 2 | ... | ... |
| | | Totals ... | 766 | 3,045 | 567 | 3,701 | 135 | 722 | 4 | 174 | 748 | 69,500 |

FOREST SURVEY.

Survey work was carried out as required by the various Divisional staffs using the Forester's compass and 5-chain band. Surveys of compartment boundaries, baselines, firelines, roads and general topographical features necessitated the running of 748 miles of traverse lines.

PERMANENT ESTABLISHMENT.

During the year new Divisional Headquarters were established at Harvey and Kelmscott. Four houses and two Divisional offices were built.

A total of 174 houses have now been built in forest districts and these are occupied by officers of the Administrative staff, Foresters, Overseers, and permanent employees.

Three additional fire lookout towers, one 100 ft. and two 60ft. high, were erected within the Jarrah forest of the Harvey and Collie Divisions. In all 15 fire lookout towers were in operation last fire season throughout the main forest regions of the South-West.

To assist in fire control and general administration a further 135 miles of earth circuit telephone line were erected, connecting the new houses, fire towers and Divisional offices with already existing forest stations. A total of 722 miles of Departmental telephone lines are now in operation, embracing Divisional and District offices, lookout towers, resident staff, forest stations, and in many cases adjoining local farmers.

Within the main forest belt 766 miles of road were cleared and graded for motor traffic and the system of firelines surrounding compartments was extended by the clearing of a further 567 miles. The system of roads and firelines now embraces 3,045 miles of trafficable roads and 3,701 miles of established firelines. These forest roads, in addition to providing access for fire control and management purposes, are being used to an increasing extent for the extraction of forest produce from private property as well as from Crown lands, and for general access by bush workers and the farming community. Their maintenance in a trafficable condition is becoming a problem of increasing difficulty, and it will be necessary to seek some assistance from general funds set aside for road construction and maintenance if their general use by the travelling public is to be permitted without restriction.

ASSESSMENT SURVEY.

Assessments, soil surveys and type mapping were carried out over 69,500 acres.

In the Kirup Division 34,000 acres of soil survey and assessment survey were carried out at Wilga and a further 23,000 acres in the vicinity of Jarrahood, while 500 acres were covered at Treestown in the Harvey Division.

Within the Karragullen district 12,000 acres were assessed for firewood supplies.

(B)—SILVICULTURE.

(a) Jarrah.

SUMMARY OF OPERATIONS FOR THE YEAR AND TOTAL AREA REGENERATED.

| No. | Division Headquarters. | District. | Area regenerated. 1936-1937. | Total area regenerated at 30th June, 1937. | Thinning. 1936-1937. | Tree-marking. | | Top Disposal. |
|-----|------------------------|-----------------|------------------------------|--|----------------------|---------------|---------|---------------|
| | | | | | | Saw-milling. | Hewing. | |
| | | | acres. | acres. | acres. | acres. | acres. | acres. |
| 2 | Mundaring ... | Mundaring ... | 20 | 3,943 | 131 | ... | ... | ... |
| 3 | Dwellingup ... | Dwellingup ... | 5,735 | 29,597 | ... | 7,137 | 2,295 | 7,863 |
| | | Wuraming ... | 4,782 | 26,086 | ... | 2,795 | ... | 2,266 |
| | | Huntly ... | 4,622 | 19,912 | ... | 1,674 | ... | 1,214 |
| | | Duncans ... | 2,424 | 27,566 | ... | 367 | ... | 542 |
| 4 | Collie ... | Collie ... | 3,630 | 35,745 | 622 | 2,703 | 1,362 | 3,807 |
| | | Muja ... | ... | ... | ... | ... | 6,343 | ... |
| | | Worsley ... | 263 | 4,446 | ... | 2,690 | ... | 1,866 |
| | | Wellington ... | 1,574 | 5,360 | ... | ... | ... | 1,447 |
| 5 | Kirup ... | Kirup ... | 158 | 20,397 | 20 | 3,785 | ... | 2,214 |
| | | Noggerup ... | ... | 3,340 | ... | ... | 277 | 2,875 |
| | | Bridgetown ... | ... | 3,674 | ... | ... | ... | ... |
| | | Nannup ... | ... | 15,428 | ... | 2,177 | ... | 1,946 |
| | | Jarrahwood ... | ... | 12,486 | ... | 3,632 | ... | 12,637 |
| 6 | Manjimup ... | Manjimup ... | ... | 7,200 | 87 | ... | ... | 720 |
| 8 | Kelmscott ... | Jarrahdale ... | 8,589 | 26,670 | 200 | 4,063 | ... | 2,369 |
| | | Karragullen ... | 5,273 | 34,861 | 119 | 1,895 | ... | 985 |
| | | Solus ... | 6,020 | 20,754 | ... | ... | ... | ... |
| 10 | Harvey ... | Willowdale ... | 7,127 | 25,979 | ... | 2,244 | ... | 2,244 |
| | | Hoffman ... | 2,100 | 3,449 | ... | 2,225 | ... | 2,225 |
| | | Tallanalla ... | 4,069 | 17,978 | ... | 1,386 | ... | 4,586 |
| | | Totals ... | 56,386 | 344,871 | 1,179 | 38,773 | 10,277 | 51,806 |

Jarrah.

The total of 56,386 acres of cut over Jarrah forest subdivided, provided with fire lines and roads of access, and regenerated, was considerably less than the area dealt with in the preceding year. This decrease may be attributed principally to the fact that regeneration work is rapidly overtaking logging operations on all compact areas of good quality Jarrah forest where any form of intensive silvicultural treatment is immediately necessary. The greatest need of the cut over Jarrah forests as a whole is protection from fire, and increasing attention is being focused on this aspect of reforestation work. Very little information is available concerning the response of second growth Jarrah to various types of thinning treatment and pending the results of study plots which have been established in several districts, thinning operations have been restricted to the comparatively small area of 1,179 acres.

During the past five years the area of cut over Jarrah forest regenerated and provided with roads of access, fire lines, etc., has averaged 51,430 acres per annum. This large programme has been rendered possible by special unemployment relief grants towards which the Commonwealth Government has made generous contributions during the past two years. The average number of employees during the past year dropped to approximately 625, most of whom have been engaged in various operations in the Jarrah forest.

The trade cutting operations in the Jarrah forest proceeded on a normal production basis, the total cut of saw mill logs from State Forests being very slightly below the permissible cut fixed under the General Working Plan for Jarrah. To secure a volume of 22,565,600 cubic feet of logs it was necessary to work over some 50,000 acres of which 38,770 were cut under tree marking control.

The total area of Jarrah forest regenerated is shown as 344,871 acres which does not agree with the corresponding figures contained in the report for last year. The figures now quoted are based on a revision of the progress plans of all districts and 44,410 acres, which have received only a light preliminary treatment pending further logging operations, have now been excluded from the totals.

Karri.

During the year 2,254 acres of cut over Karri forest were treated for natural regeneration. The system of fire protection was consolidated and extended by the construction of 29 miles of firelines and 93 miles of roads. Nine miles of new telephone line were erected.

The total area of Karri forest which has been reforested and placed under intensive fire protection now amounts to 18,356 acres.

Mallet.

In the Narrogin district unproductive land of poor quality infested with poison plants of the genera *gastrolobium* and *oxylobium* and carrying an open stand of Wandoo is being converted to plantations of Brown Mallet. During the year the area of plantation was extended by the clear felling, burning off and spot sowing with Mallet of 1,487 acres. The area of established plantation now totals 9,670 acres.

A further 350 acres of Wandoo forest carrying scattered colonies of Mallet and which had been burnt over, was spot sown with Mallet.

To facilitate the management and protection of plantations, 53 miles of ploughed firelines and 25 miles of graded roads were constructed, and 16½ miles of telephone line erected.

Within established plantations "cleaning" operations, embracing the liberation of Mallet from competition with Wandoo suckers, was carried out over 1,393 acres.

For future sowing operations, 1,550 lbs. of Brown Mallet seed were collected.

(C)—FIRE CONTROL.

| Division. | | Area under Fire Control. | Area afforded Complete Protection. | | | | |
|-----------|---------------------|-----------------------------|---|-----------------|--------------------------|------------------|-----------------|
| | | | Indigenous Forest. | | Pine Plantation. | | |
| No. | Head- quarters. | | Regenerated and tended at 30th June, 1937. | Fire Losses. | Cleared for Planting. | Planted Area. | Fire Losses. |
| | | acres. | acres. | acres. | acres. | acres. | acres. |
| 1 | Busselton | 11,000 | 2,366 | ... | 462 | 2,233 | ... |
| 2 | Mundaring | 52,000 | 4,192 | 34 | ... | 2,323 | ... |
| 3 | Dwellingup | 200,000 | 104,261 | 167 | ... | ... | 2 |
| 4 | Collie | 155,000 | 59,812 | 41 | 24 | 482 | ... |
| 5 | Kirup | 160,000 | 69,277 | 673 | 515 | 433 | ... |
| 6 | Manjimup | 33,000 | 29,659 | 370 | ... | 303 | ... |
| 7 | Narrogin | 80,000 | 9,670 | ... | ... | ... | ... |
| 8 | Kelmscott | 310,000 | 84,890 | 114 | ... | ... | ... |
| 9 | Metropolitan | 5,200 | ... | ... | 243 | 3,897 | ... |
| 10 | Harvey | 250,000 | 52,546 | 70 | 188 | 1,227 | ... |
| | Totals | 1,256,200 | 416,673 | 1,469 | 1,432 | 10,898 | 2 |

FIRE CONTROL.

The last fire season was a severe and difficult one. Total rainfall figures for the summer months were higher than the previous year's, but this was due to a heavy fall of over an inch in the second week of February, which rapidly soaked in and left the forest in a condition to carry severe fires within 4 days. The Fire Weather Research Station has now functioned for four years and the past summer was the most severe recorded from the point of view of the prolonged periods of high hazard. The degree of hazard is recorded daily in accordance with a scale which ranges from 0, representing wet days when a fire will not burn in the open, to 10, representing the most severe conditions experienced on extremely hot days with high wind and low humidity. For the past fire season the average daily hazard at Dwellingup on this scale was 6.45 compared with 5.95 in 1935-36, 5.07 in 1934-35 and 4.82 in 1933-34.

Under these conditions it is not surprising that extensive and severe fires were reported from unprotected forest and private holdings. The record of the Department on areas covered by its fire control measures is not as good as in past years, but must be regarded as most satisfactory when considered in relation to the disastrous consequences which would have been suffered in such a summer in the more accessible forest regions between Perth and Kirup without this protective organisation. Out of an area of 416,673 acres listed for complete protection 1,469 acres were damaged by fire, which represents on an area basis 0.35 per cent. of the regenerated forest. The fire losses on 10,898 acres of plantation were only 2 acres.

It is pleasing to report the increasing measure of co-operation being afforded the Department in its fire control work by bush workers and neighbouring land holders. It is becoming increasingly apparent that the future prosperity of the timber industry in the South-West is dependent to a far larger extent on the success of the fire control organisation of the Department than on any other single factor. Apart from the damage to regrowth in cut over forest, the fires which strip the leaves without killing the large trees of the virgin forest are causing cumulative damage to the trunks which is steadily reducing the total volume of log timber which will be available for milling from these forests.

In the districts where the Department has been established for a number of years, there is a much better appreciation by the public of the control measures which are carried out each year, involving the cultivation or grading of many thousands of miles of tracks and the burning by con-

trolled fires of many tens of thousands of acres of fire-belts and dangerous hazards such as open flats and areas of poor scrub land. Many farmers whose land adjoins the forest are now linked into the departmental telephone system, and are available throughout the summer months as an auxiliary fire fighting force of great importance and value.

(3).—AFFORESTATION.

AREAS OF CONIFERS PLANTED 1936, AND TOTAL AREA ESTABLISHED.

| Division. | Plantation. | Area established, 1936. | | | | Total Area established. | | | |
|----------------------------|---------------|-------------------------|------------------------|-----------------|-------------|-------------------------|------------------------|-----------------|---------------|
| | | <i>Pinus radiata.</i> | <i>Pinus pinaster.</i> | Other conifers. | Total. | <i>Pinus radiata.</i> | <i>Pinus pinaster.</i> | Other conifers. | Grand Total. |
| No. 1— Busselton ... | Coolilup ... | acres. 5 | acres. ... | acres. ... | acres. 5 | acres. 12 | acres. 771 | acres. 23 | acres. 806 |
| | Stirling ... | 27.5 | 31.5 | ... | 59 | 107.5 | 688.5 | 20 | 816 |
| Margaret River | Boranup ... | 3.5 | 29 | ... | 32.5 | 40.5 | 45 | ... | 85.5 |
| | Keenan ... | 119.5 | 19 | 2 | 140.5 | 376.5 | 147 | 2 | 525.5 |
| No. 2— Mundaring ... | Helena ... | 38 | 11 | ... | 49 | 515 | 218 | 45 | 778 |
| | Greystones | 12 | ... | ... | 12 | 449 | 192 | 57 | 698 |
| | Beraking ... | ... | ... | ... | ... | 143 | 65 | 92 | 300 |
| | Mudros ... | 16 | ... | ... | 16 | 157 | 110 | 29 | 296 |
| | Darkin ... | ... | ... | ... | ... | 115 | 132 | 4 | 251 |
| No. 4— Collie ... | Mungalup | ... | ... | ... | ... | 59 | 5 | 3 | 67 |
| | Proprietary | ... | 15.5 | ... | 15.5 | ... | 346.5 | 4 | 350.5 |
| No. 5— Kirup ... | East Kirup | 35 | ... | ... | 35 | 246 | 121 | 2 | 369 |
| No. 6— Manjimup ... | Big Brook... | 2 | 2 | ... | 4 | 256 | 2 | 45 | 303 |
| No. 9— Metropolitan ... | Applecross | ... | 120 | ... | 120 | ... | 998 | ... | 998 |
| | Gnangara ... | ... | 42.5 | ... | 42.5 | ... | 1,315.5 | 7 | 1,322.5 |
| | Collier ... | ... | 105 | ... | 105 | ... | 856 | ... | 856 |
| | Scaddan ... | ... | ... | ... | ... | ... | 210 | ... | 210 |
| Albany ... | Pardelup ... | ... | ... | ... | ... | 280 | 215 | 1 | 496 |
| No. 10— Harvey ... | Myalup ... | ... | ... | ... | ... | 10 | 737 | 21 | 768 |
| | Harvey Weir | ... | ... | ... | ... | 282 | 90 | 25 | 397 |
| | Hamel ... | 2 | ... | ... | 2 | 20 | 40 | 2 | 62 |
| EXPERIMENTAL ... | Nannup ... | ... | ... | ... | ... | 14 | 32 | 18 | 64 |
| | Bowelling ... | ... | ... | ... | ... | 9 | 29 | 27 | 65 |
| | Albany ... | ... | ... | ... | ... | 1 | 4 | 9 | 14 |
| Totals ... | ... | 260.5 | 375.5 | 2 | 638 | 3,092.5 | 7,369.5 | 436 | 10,898 |

During the winter of 1936 pine planting operations were extended over a further 638 acres, making a total of 10,898 acres of plantation established during an 11-year period.

Of the planted area, 5,709 acres or approximately half, lie within a 40 mile radius of the important markets of the metropolitan area.

Apart from experimental plots, *Pinus pinaster* and *Pinus radiata* are the only species planted. The 1936 planting included 375 acres of *pinaster* and 260 acres of *radiata*, making a total planted area of 7,369 acres and 3,092 acres respectively.

During the year 40,832 cubic feet of pine timber were sold from Departmental plantations. A further 5,226 cubic feet of locally grown pine from private property were milled in country sawmills in addition to a small quantity cut in city case factories. The plantation grown timber was obtained from thinning operations at Mundaring Weir, Harvey Weir and Ludlow, where considerable areas established since 1923 are now reaching a stage when a first thinning is desirable.

(4).—RESEARCH AND INVESTIGATION.

(a) *Management and Silviculture.*

During the year a total area of 57,500 acres were covered by soil and vegetational surveys in connection with the site classification of the marginal jarrah forest. Within the Harvey and Kirup divisions an intensive soil profile and vegetation study, supported by timber assessment, was carried out over 1,000 acres, while 56,500 acres were covered by similar though less intensive surveys.

In the course of this work a number of special studies have been made with a view to gaining information regarding the correlation of soil types with crop quality and ground vegetation types.

Replicated experimental plots established in 1935 in areas of Jarrah regrowth have produced interesting data relating to the growth and development of young Jarrah resulting from regeneration treatment. While these experiments have not been established over a sufficiently long period of years to provide conclusive results, much valuable information on the effect of thinning on height and diameter growth, crown development and general habit of Jarrah in its early stages of growth has been gained.

Further experimental plots were laid down during the year in thinned and unthinned areas of Jarrah regrowth.

Experimental work in pine establishment was continued and a number of factors were studied in 25 field trials.

Investigations in pine nutrition were continued and further experiments involving the spraying and injection of non-vigorous and unhealthy trees with dilute solutions of "minor" or "trace" elements have been laid down. Positive results have been obtained with zinc, and specific treatments for the various physiological disorders are being worked out with a view to their adoption into general practice.

To obtain information regarding thinning practice in the increasing areas of coniferous plantations a series of replicated plots embodying various thinning grades were established in the *Pinus pinaster* stands on the coastal sands.

(b) *Fire Protection.*

The measurement of fire weather and forest inflammability was continued at Dwellingup, where the Fire Weather Research Station has been in operation during the past four years. Detailed study of the meteorological conditions pertaining in the Jarrah forest was continued and much valuable data accumulated. For practical purposes this information has been converted into an expression of daily fire hazard and forecast of anticipated fire weather conditions. These forecasts, together with short talks on the liability of outbreak of fires and the probable extent of their development under various conditions, were transmitted early each morning throughout the summer from the Perth National Broadcasting Station.

Lookout tower equipment was the subject of further investigation, particular attention being applied to improvements in the fire finding apparatus, fire plan mounting, panoramic plan preparation and annotation, and methods of recording and transmitting observations. Improved methods for more accurate and early detection and location of fires received constant attention and consideration.

Continued investigations of the methods adopted in fire suppression were carried out with consequent improvement in fire fighting equipment, suppression technique, and organisation. Fire suppression in the Karri forests received particular attention and modifications to the general methods of prevention and suppression were effected to cope with unusual conditions prevailing in these areas.

Instructional camps for the training of men in fire control work were continued.

(c) *Utilisation.*

With improved conditions in the industry sawmills have been working at full pressure and a number of investigations have been carried out arising out of mills cutting in excess of the volume allowed under permit conditions. The largest undertaking of this nature was a mill study at Railway Mill, Dwellingup. A comprehensive report was prepared based on a plant and time study of the mill, a survey of bush operations and an examination of mill records over a considerable period. Among the recommendations submitted were proposals for a revision of intake capacity with a view to securing better balance between bush and mill operations and lower production costs. The general layout of the existing milling plant precluded any attempt to base mill intake on the productive capacity of the forest on a sustained yield basis, but it is very evident that the plant is considerably larger than the area of the permit and the volume of timber which it is carrying warrant.

Close contact was maintained with the various kiln operators and assistance given from time to time.

Work on grading was continued, the range of specifications in Bulletin 49 being extended, although no publication has yet been made. Suitable specifications based on trade practice are now available for practically all classes of Jarrah and Karri product. Rules published in Bulletin 49 have been carefully examined in the light of experience in their practical use, and minor modifications considered desirable have been listed. It is hoped to have the new specifications and necessary amendments adopted by the Standards Association of Australia at an early date.

A commencement was made in collection of material for a comprehensive series of strength tests on Jarrah to be carried out by the Division of Forest Products, Council for Scientific and Industrial Research, in Melbourne. Similar work was recently completed on Karri, and results should be available shortly. While the need for test results for Jarrah by standard methods has been appreciated for many years, and has been listed by the Division for investigation when convenient, Millars' Timber and Trading Co., Ltd., have been pressing for the work to be carried out at an early date, and are generously co-operating in cost of supplying the necessary material.

Close contact has been maintained with the Division of Forest Products and valuable assistance has been received in connection with a number of utilisation problems and inquiries.

(5).—ARBORICULTURE.

During the distributing season which closed on August 31st, 1936, 121,080 trees were sent out from Hamel Nursery.

Of the trees distributed 41,147 were disposed of by sale, 17,361 were supplied free to other Government Departments, public bodies and charitable institutions, and 62,572 were consigned to Departmental plantations and arboreta.

The number of trees sold was approximately the same as for the previous year.

For the first time in many years *Pinus radiata* (Monterey Pine) was foremost in order of popularity with sales of 8,800. *Eucalyptus cladocalyx* (Sugar Gum) retained second place (7,700), while *Pinus pinaster*, which had headed the list for several years, dropped to third place with sales of 6,400.

A noticeable feature during the past few years has been the rapid increase in popularity of *Tristania conferta* (Brush Box), sales of which have increased during the past four years from about 350 to over 2,000 trees annually.

CHAPTER IV.

(1).—LEGISLATION.

"Forests Act Amendment Continuance Act, 1936."

An Act to continue the provisions of the "Forests Act Amendment Act, 1935," was assented to on the 11th December, 1936. This Act provides that the whole of the revenue derived from sandalwood during the period from the 1st July, 1936, to the 31st December, 1937, shall be excluded from the provisions of sub-section (2) of Section 41 of the "Forests Act, 1918" and be transferred to Consolidated Revenue. This provision has been enacted annually since 1930.

(2).—ADMINISTRATION.

The following staff changes took place during the year:—

(a)—*Professional Division.*

Mr. J. O'Donnell, B.Sc., Agric. and B.Sc. For. (W.A.), Dip. For. (Canb.), Assistant Divisional Forest Officer, was promoted to Fire Control Officer.

Mr. A. D. Helms, M.D.F.F., was appointed Research Officer.

Both of these positions carry the same classification as Divisional Forest Officer.

Messrs. J. L. d'Espeissis, Dip. For. (Canb.), and H. L. Gloe, Dip. For. (Canb.), were appointed Assistant Divisional Forest Officers and

Mr. C. P. O'Brien, Dip. For. (Canb.), was appointed Assistant Utilisation Officer, with the same classification as an Assistant Divisional Forest Officer.

Miss J. Hearman, Ph.D., B.Sc., joined the Research Branch temporarily in connection with pine nutrition studies.

One student proceeded to Canberra in March to take the diploma course at the Australian Forestry School.

(b)—*General Division.*

During the year the death occurred of three popular and efficient members of the field staff. Foresters H. Clifford and J. F. Gallagher were on the eve of retirement after long periods of faithful service with the Department. Assistant Forester W. L. Dines died suddenly at a comparatively young age.

With a decrease in the volume of relief work being carried out the field staff was further reduced by the retirement of two temporary assistant foresters.

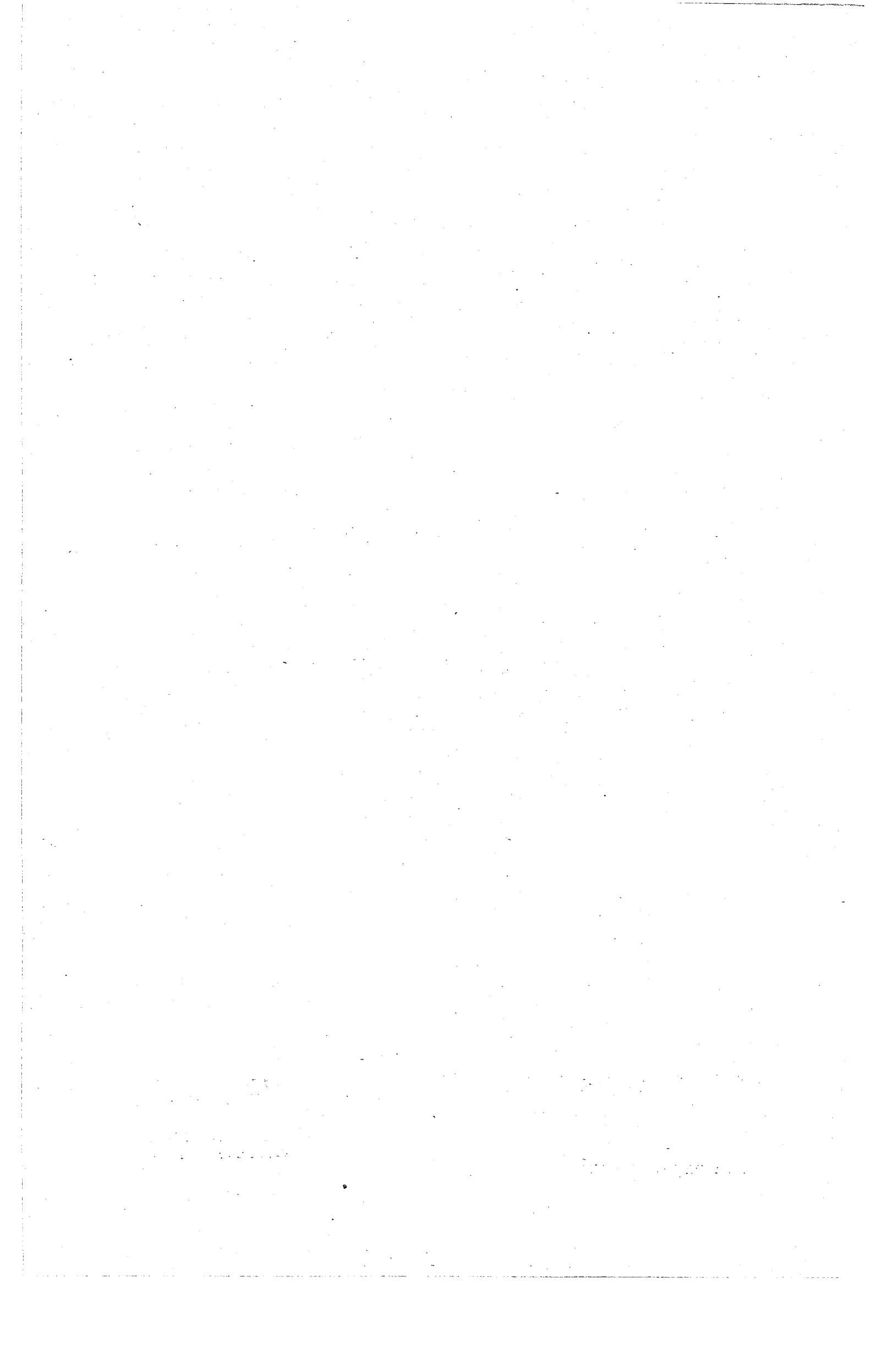
(c)—*Clerical Division.*

Only changes of a very minor nature occurred in Head Office Staff during the year.

It affords me great pleasure to place on record the loyal and efficient service rendered by all ranks of the Service during the year.

S. L. KESSELL,
Conservator of Forests.

Perth. 7th September, 1937.



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APPENDIX 1a.

CONSOLIDATED REVENUE FUND.

General Statement of Revenue and Expenditure for the Year ended 30th June, 1937.

| DR. | | | | CR. | | | |
|--------------------------------|----------|----|----|---|--------|----------|-----------|
| | £ | s. | d. | | £ | s. | d. |
| To Log Royalty | 98,182 | 11 | 9 | By Salaries | 21,017 | 19 | 10 |
| „ Sandalwood Royalty | 29,087 | 2 | 6 | „ Add Cash Order outstanding 1st July, 1936 | 9 | 12 | 4 |
| „ Hewn Timber Royalty | 9,216 | 4 | 11 | | 21,027 | 12 | 2 |
| „ Miscellaneous Royalty | 7,858 | 1 | 2 | „ Less Cash Order outstand- ing 30th June, 1937 | 9 | 4 | 9 |
| „ Goldfields Revenue | 9,550 | 15 | 0 | | 21,018 | 7 | 5 |
| „ Inspection Fees | 6,912 | 14 | 10 | „ Postages and Telephones | 189 | 8 | 2 |
| „ Rents | 1,574 | 16 | 10 | „ Stationery | 157 | 18 | 3 |
| „ Sales | 1,251 | 15 | 3 | „ Travelling | 181 | 16 | 7 |
| „ Miscellaneous Revenue | 1,254 | 7 | 7 | „ Freights and Fares | 174 | 13 | 6 |
| | | | | „ Material | 78 | 13 | 3 |
| | | | | „ Mileage Allowance | 1,616 | 19 | 2 |
| | | | | „ Miscellaneous | 274 | 8 | 6 |
| | | | | „ Sandalwood Expenses | 510 | 17 | 11 |
| | | | | „ Maintenance State Nursery | 67 | 13 | 1 |
| | | | | „ Allowances P.S. Regulation | | | |
| | | | | 76 | 32 | 9 | 5 |
| | | | | „ Workers' Compensation | | | |
| | | | | Premiums | 714 | 6 | 11 |
| | | | | | 3,999 | 4 | 9 |
| | | | | „ Add Cash Order outstand- ing 1st July, 1936 | 15 | 3 | |
| | | | | | | | 4,000 0 0 |
| | | | | „ Timber Industry Regula- tions | | | 435 1 5 |
| | | | | | | | |
| | | | | Total Expenditure | | £25,453 | 8 10 |
| | | | | „ Excess Revenue over Ex- penditure | | 139,435 | 1 0 |
| | | | | | | | |
| | £164,888 | 9 | 10 | | | £164,888 | 9 10 |

APPENDIX 1b.

Statement of Reforestation and Afforestation Expenditure for the Year ended 30th June, 1937.

| Dr. | £ | s. | d. | £ | s. | d. | Cr. | | |
|--|--------|----|----|----------|----|----|----------|----|----|
| | | | | | | | £ | s. | d. |
| To Division No. 1— | | | | | | | | | |
| General | 673 | 17 | 7 | | | | | | |
| Ludlow | 2,039 | 12 | 7 | | | | | | |
| Boranup | 514 | 7 | 9 | | | | | | |
| Keenan | 2,544 | 1 | 5 | | | | | | |
| | | | | 5,771 | 19 | 4 | | | |
| „ Division No. 2— | | | | | | | | | |
| General | 1,164 | 10 | 6 | | | | | | |
| Mundaring | 4,036 | 12 | 2 | | | | | | |
| | | | | 5,201 | 2 | 8 | | | |
| „ Division No. 3— | | | | | | | | | |
| General | 2,341 | 15 | 6 | | | | | | |
| Dwellingup, Huntly, Wuraming, and Dun- can's | 17,562 | 5 | 2 | | | | | | |
| | | | | 19,904 | 0 | 8 | | | |
| „ Division No. 4— | | | | | | | | | |
| General | 1,243 | 14 | 10 | | | | | | |
| Collie and Collie Outer | 13,729 | 5 | 3 | | | | | | |
| | | | | 15,023 | 0 | 1 | | | |
| „ Division No. 5— | | | | | | | | | |
| General | 2,095 | 2 | 4 | | | | | | |
| Kirup, Nannup and Greenbushes | 12,483 | 18 | 5 | | | | | | |
| | | | | 14,579 | 0 | 9 | | | |
| „ Division No. 6— | | | | | | | | | |
| General | 1,052 | 3 | 11 | | | | | | |
| Manjimup | 8,416 | 1 | 9 | | | | | | |
| | | | | 9,468 | 5 | 8 | | | |
| „ Division No. 7— | | | | | | | | | |
| General | 1,102 | 11 | 0 | | | | | | |
| Narrogin | 10,687 | 15 | 8 | | | | | | |
| | | | | 11,790 | 6 | 8 | | | |
| „ Division No. 8— | | | | | | | | | |
| General | 2,031 | 11 | 11 | | | | | | |
| Jarrahdale | 24,787 | 1 | 11 | | | | | | |
| | | | | 26,818 | 13 | 10 | | | |
| „ Division No. 9— | | | | | | | | | |
| Administration | 692 | 18 | 8 | | | | | | |
| Applecross | 1,724 | 17 | 11 | | | | | | |
| Collier | 1,101 | 7 | 9 | | | | | | |
| Gnangara | 1,832 | 10 | 10 | | | | | | |
| Scaddan | 141 | 13 | 5 | | | | | | |
| Pardelup | 144 | 11 | 11 | | | | | | |
| | | | | 5,638 | 0 | 6 | | | |
| „ Division No. 10— | | | | | | | | | |
| General | 1,396 | 2 | 4 | | | | | | |
| Yarloop-Mornington | 19,407 | 8 | 11 | | | | | | |
| Hamel | 387 | 18 | 10 | | | | | | |
| Harvey Weir and Myalup | 2,133 | 2 | 9 | | | | | | |
| | | | | 23,324 | 12 | 10 | | | |
| Total Divisional Expend- iture | | | | 137,519 | 3 | 0 | | | |
| „ Training of Staff | | | | 141 | 12 | 0 | | | |
| „ Research and Investigation | 2,906 | 18 | 6 | | | | | | |
| „ Preparation of Working Plans and Topo. Survey | 2,253 | 2 | 9 | | | | | | |
| „ Salaries and Allowances | 5,887 | 9 | 0 | | | | | | |
| „ General Equipment and In- cidentals | 3,197 | 0 | 2 | | | | | | |
| „ Cash Order Expenditure un- allocated at 30th June, 1937 | 2,785 | 7 | 10 | | | | | | |
| | | | | 17,171 | 10 | 3 | | | |
| | | | | £154,690 | 13 | 3 | | | |
| | | | | | | | £154,690 | 13 | 3 |

APPENDIX 2a.

Exports of Timber, Tanning Barks, Sandalwood and Essential Oils for the Year ended 30th June, 1937.

| Item and Country of Destination. | Quantity. | Value. | Item and Country of Destination. | Quantity. | Value. |
|--------------------------------------|-----------|---------|---|-----------|---------|
| TIMBER— | Cubic ft. | £ | WOOD MANUFACTURES—contd. | cubic ft. | £ |
| <i>Dressed, N.E.I. :</i> | | | <i>Other :</i> | | |
| Commonwealth of Australia | 32 | 14 | Commonwealth of Australia | ... | 7,659 |
| United Kingdom ... | 5,052 | 1,002 | United Kingdom ... | ... | 202 |
| South African Union ... | 281 | 145 | Ceylon ... | ... | 10 |
| | 5,365 | 1,161 | Denmark ... | ... | 4 |
| | | | | ... | 7,875 |
| <i>Undressed, Railway Sleepers :</i> | | | Total, Wood Manufactures ... | ... | 52,338 |
| Commonwealth of Australia | 149,851 | 17,184 | Total, Timber and Wood Manufactures ... | ... | 752,022 |
| United Kingdom ... | 44,350 | 5,322 | | | |
| Aden ... | 44,313 | 5,317 | SANDALWOOD— | cwt. | |
| Ceylon ... | 203,300 | 27,335 | British Malaya ... | 2,808 | 4,283 |
| Mauritius ... | 22,709 | 2,521 | Ceylon ... | 400 | 620 |
| South African Union ... | 403,589 | 48,506 | Hong Kong ... | 22,350 | 33,534 |
| Egypt ... | 202,960 | 24,355 | India ... | 2,100 | 3,256 |
| China ... | 762,448 | 91,492 | China ... | 22,288 | 33,481 |
| Iraq ... | 229,422 | 27,530 | Japan ... | 160 | 248 |
| Portuguese East Africa ... | 2,491 | 299 | Netherlands East Indies ... | 160 | 248 |
| | 2,065,433 | 249,861 | | 50,266 | 75,670 |
| <i>Undressed, N.E.I. :</i> | | | TANNING BARK— | | |
| (a) Commonwealth of Australia | 1,686,071 | 205,404 | Commonwealth of Australia | 26,578 | 13,521 |
| United Kingdom ... | 1,120,800 | 141,554 | Belgium ... | 400 | 176 |
| British West Africa | 7,811 | 1,846 | Germany ... | 515 | 228 |
| British Malaya ... | 1,501 | 225 | Netherlands | 1,014 | 566 |
| Ceylon ... | 63,350 | 7,937 | | 28,507 | 14,491 |
| Mauritius ... | 33,548 | 5,014 | ESSENTIAL OILS— | | |
| New Zealand ... | 199,500 | 24,192 | <i>Non-Spirituos, N.E.I. :</i> | | |
| South African Union ... | 338,791 | 40,699 | Commonwealth of Australia | ... | 6,835 |
| Egypt ... | 10,976 | 1,317 | United Kingdom ... | ... | 15,004 |
| Iraq ... | 2,175 | 261 | Canada ... | ... | 260 |
| Portuguese East Africa ... | 24,792 | 2,974 | Ceylon ... | ... | 16 |
| Belgium ... | 43,193 | 7,117 | British Malaya ... | ... | 193 |
| China ... | 31,651 | 3,744 | Hong Kong ... | ... | 3,102 |
| Germany ... | 24,284 | 4,449 | India ... | ... | 48 |
| Netherlands | 14,570 | 1,916 | New Zealand ... | ... | 8 |
| United States of America ... | 92 | 13 | South African Union | ... | 328 |
| | 3,603,105 | 448,662 | China ... | ... | 569 |
| Total, Timber Exports | ... | 699,684 | France ... | ... | 5,252 |
| WOOD MANUFACTURES— | | | Germany ... | ... | 2,911 |
| <i>Casks and Shooks :</i> | | | Japan ... | ... | 1,600 |
| (b) Commonwealth of Australia | ... | 38,560 | Netherlands | ... | 368 |
| United Kingdom ... | ... | 671 | Netherlands East Indies ... | ... | 1,650 |
| British Malaya ... | ... | 40 | Philippine Islands | ... | 30 |
| | ... | 39,271 | | ... | 38,174 |
| <i>Furniture :</i> | | | <i>Eucalyptus :</i> | | |
| Commonwealth of Australia | ... | 5,133 | British Malaya ... | ... | 11 |
| United Kingdom ... | ... | 50 | | ... | 880,368 |
| British Malaya ... | ... | 9 | Total, All Exports | ... | |
| | ... | 5,192 | | | |

(a) Value includes £1,423 of staves for which no quantity is shown.

(b) Principally empty returns.

APPENDIX 2b.

Imports of Timber, Tanning Substances and Essential Oils for the Year ended 30th June, 1937.

| Item and Country of Origin. | Quantity. | Value. | Item and Country of Origin. | Quantity. | Value. |
|--------------------------------------|-----------|--------|---------------------------------------|-----------|---------|
| TIMBER— | cub. ft. | £ | WOOD MANUFACTURES—contd. | cub. ft. | £ |
| <i>Timber, Dressed :</i> | | | <i>Furniture—contd.</i> | | |
| Architraves, Mouldings, etc. : | | | Japan | ... | 303 |
| Commonwealth of Australia | ... | 799 | Netherlands | ... | 8 |
| <i>Tongued and Grooved :</i> | | | Norway | ... | 6 |
| Norway | 5,426 | 606 | Sweden | ... | 18 |
| Sweden | 1,667 | 178 | Switzerland | ... | 5 |
| | 7,093 | 784 | United States of America ... | ... | 736 |
| | | | | ... | 26,289 |
| <i>(a) Timber, Dressed, N.E.I. :</i> | | | <i>Plywood and Veneers :</i> | | |
| Commonwealth of Australia | 727 | 164 | Commonwealth of Australia | ... | 46,955 |
| United Kingdom | ... | 3 | Canada | ... | 76 |
| Canada | 7 | 14 | Japan | ... | 552 |
| New Zealand | 156 | 70 | Norway | ... | 73 |
| Germany | ... | 12 | Philippine Islands | ... | 232 |
| Norway | 131 | 11 | United States of America ... | ... | 329 |
| Sweden | 697 | 79 | | ... | 48,217 |
| United States of America ... | 15 | 20 | | | |
| | 1,733 | 373 | <i>Spokes, Rims, and Felloes :</i> | | |
| | | | Commonwealth of Australia | 7,534 | 345 |
| <i>Timber, Undressed—</i> | | | <i>Tool Handles (including Axe) :</i> | | |
| <i>(b) Timber for making Boxes :</i> | | | Commonwealth of Australia | ... | 3,191 |
| Commonwealth of Australia | ... | 9,427 | United Kingdom | ... | 205 |
| Canada | 110,894 | 7,503 | Canada | ... | 758 |
| British Malaya | 9,803 | 656 | New Zealand | ... | 14 |
| New Zealand | ... | 2,352 | United States of America ... | ... | 3,120 |
| Finland | 794 | 78 | | ... | 7,288 |
| Netherlands | 267 | 251 | | | |
| Norway | 7,912 | 773 | <i>Wood Manufactures, N.E.I. :</i> | | |
| Sweden | 54,299 | 5,617 | Commonwealth of Australia | ... | 18,777 |
| | 183,969 | 26,657 | United Kingdom | ... | 2,696 |
| | | | Canada | ... | 381 |
| <i>Timber, Undressed, N.E.I. :</i> | | | British Malaya | ... | 2 |
| Commonwealth of Australia | 220,055 | 38,943 | Ceylon | ... | 3 |
| United Kingdom | 523 | 131 | Hong Kong | ... | 7 |
| British Malaya | 104 | 48 | India | ... | 3 |
| Canada | 143,869 | 18,186 | Belgium | ... | 1 |
| India | 600 | 1,118 | China | ... | 5 |
| New Zealand | 11,302 | 2,455 | Denmark | ... | 2 |
| Czecho-Slovakia | 2,281 | 224 | Finland | ... | 60 |
| Finland | 20,311 | 1,434 | France | ... | 12 |
| Japan | 42 | 24 | Germany | ... | 332 |
| Philippine Islands | 12,832 | 1,241 | Hungary | ... | 1 |
| Poland | 320 | 27 | Japan | ... | 152 |
| Siam | 563 | 250 | Lithuania | ... | 3,256 |
| Sweden | 5,758 | 436 | Norway | ... | 17 |
| United States of America ... | 92,340 | 15,714 | Sweden | ... | 7,172 |
| | 510,900 | 80,231 | United States of America ... | ... | 858 |
| | | | Yugo-Slavia | ... | 1 |
| WOOD MANUFACTURES— | | | | ... | 33,738 |
| <i>Barrels and Casks :</i> | | | Total, Timber Imports... | ... | 257,164 |
| Commonwealth of Australia | ... | 29,803 | | | |
| | | | TANNING BARK— | cwt. | |
| <i>Clothes Pegs :</i> | | | Commonwealth of Australia | 5,034 | 2,983 |
| Commonwealth of Australia | ... | 2,622 | | | |
| United Kingdom | ... | 1 | TANNING EXTRACT— | | |
| Sweden | ... | 17 | Commonwealth of Australia | ... | 136 |
| | ... | 2,640 | United Kingdom | ... | 552 |
| | | | British Borneo | ... | 68 |
| <i>Furniture :</i> | | | British Malaya | ... | 92 |
| Commonwealth of Australia | ... | 22,687 | India | ... | 51 |
| United Kingdom | ... | 2,109 | South African Union | ... | 212 |
| British Malaya | ... | 16 | Argentine Republic | ... | 353 |
| Canada | ... | 34 | Norway | ... | 7 |
| Hong Kong | ... | 74 | Paraguay | ... | 428 |
| India | ... | 13 | Turkey | ... | 72 |
| New Zealand | ... | 1 | United States of America ... | ... | 41 |
| Austria | ... | 3 | Yugo-Slavia | ... | 272 |
| China | ... | 115 | | ... | 2,284 |
| Czecho-Slovakia | ... | 2 | | | |
| Esthonia | ... | 62 | | | |
| France | ... | 3 | | | |
| Germany | ... | 94 | | | |

(a) Value includes £15 for which no quantity is shown. (b) Value includes £15,389 for timber imported via Commonwealth States, and for which no quantity is shown.

APPENDIX 2b—continued.

Imports of Timber, Tanning Substances and Essential Oils, etc.—continued.

| Item and Country of Origin. | Quantity. | Value. | Item and Country of Origin. | Quantity. | Value. |
|-----------------------------|-----------|--------|------------------------------|-----------|---------|
| ESSENTIAL OILS— | | | ESSENTIAL OILS—continued. | | |
| Commonwealth of Australia | ... | 2,365 | Italy ... | ... | 76 |
| United Kingdom ... | ... | 300 | Japan ... | ... | 777 |
| Ceylon ... | ... | 187 | Netherlands ... | ... | 477 |
| India ... | ... | 63 | Netherlands East Indies ... | ... | 68 |
| Austria ... | ... | 1 | Paraguay ... | ... | 2 |
| Belgium ... | ... | 11 | Soviet Union ... | ... | 1 |
| China ... | ... | 130 | Spain ... | ... | 12 |
| France ... | ... | 141 | United States of America ... | ... | 187 |
| Germany ... | ... | 5 | | | |
| Guiana, French ... | ... | 2 | | | 4,810 |
| Hungary ... | ... | 5 | | | |
| | | | Total, All Imports ... | ... | 267,241 |

APPENDIX 2c.

Summary of Exports of Forest Produce since 1836.

| Year. | Timber. | | Sandalwood. | | Year. | Timber. | | Sandalwood. | | Tanning Bark. | Essential Oils.* |
|-------------------|----------|--------|-------------|--------|-------------------|-------------|------------|-------------|-----------|---------------|------------------|
| | cub. ft. | Value. | Tons. | Value. | | cub. ft. | Value. | Tons. | Value. | Value. | Value. |
| 1836 ^a | 10,000 | 2,500 | ... | £ | 1887 | 354,800 | 28,384 | 4,317 | 34,533 | ... | ... |
| 1837 | ... | ... | ... | ... | 1888 | 525,750 | 42,060 | 4,470 | 33,525 | ... | ... |
| 1838 | ... | ... | ... | ... | 1889 | 788,500 | 63,080 | 6,335 | 57,465 | ... | ... |
| 1839 | ... | ... | ... | ... | 1890 | 1,172,200 | 82,052 | 5,136 | 51,355 | ... | ... |
| 1840 | ... | ... | ... | ... | 1891 | 1,273,950 | 89,179 | 3,760 | 37,600 | ... | ... |
| 1841 | ... | ... | ... | ... | 1892 | 1,032,650 | 78,419 | 5,716 | 42,870 | ... | ... |
| 1842 | ... | ... | ... | ... | 1893 | 512,950 | 33,833 | 3,893 | 32,160 | ... | ... |
| 1843 | ... | ... | ... | ... | 1894 | 1,063,700 | 74,804 | 2,784 | 23,430 | ... | ... |
| 1844 | b | 163 | ... | ... | 1895 | 1,255,250 | 88,146 | 3,851 | 30,863 | ... | ... |
| 1845 | ... | ... | 4 | 40 | 1896 | 1,545,600 | 116,420 | 6,848 | 65,800 | ... | ... |
| 1846 | 2,550 | 255 | 32 | 320 | 1897 | 2,393,300 | 192,451 | 5,852 | 49,480 | ... | ... |
| 1847 | 12,200 | 1,120 | 370 | 4,444 | 1898 | 4,036,150 | 326,195 | 4,349 | 31,812 | ... | ... |
| 1848 | 3,350 | 333 | 1,335 | 13,353 | 1899 | 6,913,550 | 553,198 | 4,084 | 29,719 | ... | ... |
| 1849 | ... | ... | ... | ... | 1900 | 5,725,400 | 458,461 | 5,095 | 39,038 | ... | ... |
| 1850 | 10,500 | 1,048 | ... | ... | 1901 | 7,150,600 | 572,354 | 8,864 | 73,931 | ... | ... |
| 1851 | 1,250 | 268 | 219 | 1,593 | 1902 | 6,256,750 | 500,533 | 7,995 | 61,771 | ... | ... |
| 1852 | 7,050 | 806 | ... | ... | 1903 | 7,745,450 | 619,705 | 4,406 | 37,913 | ... | 859 |
| 1853 | 52,200 | 5,220 | ... | ... | 1904 | 8,072,300 | 654,949 | 4,510 | 25,417 | ... | 32,876 |
| 1854 | 58,500 | 7,023 | ... | ... | 1905 | 8,709,500 | 689,943 | 5,521 | 38,817 | ... | 154,087 |
| 1855 | 76,900 | 12,076 | ... | ... | 1906 | 8,830,700c | 708,993 | 8,848 | 70,958 | ... | 140,720 |
| 1856 | 70,500 | 9,671 | ... | ... | 1907 | 6,409,550c | 511,923 | 9,212 | 65,999 | ... | 98,773 |
| 1857 | 69,200 | 9,449 | 280 | 2,524 | 1908 | 9,869,500c | 813,591 | 9,564 | 76,668 | ... | 79,934 |
| 1858 | 29,250 | 2,340 | 745 | 7,455 | 1909 | 10,830,450c | 867,419 | 4,805 | 37,456 | ... | 59,633 |
| 1859 | 67,250 | 6,051 | 1,278 | 17,259 | 1910 | 12,074,100c | 972,698 | 8,228 | 70,775 | ... | 93,733 |
| 1860 | 54,800 | 4,932 | 1,687 | 16,360 | 1911 | 12,449,500c | 986,341 | 6,907 | 65,506 | ... | 83,470 |
| 1861 | 27,750 | 2,497 | 2,558 | 24,945 | 1912 | 11,297,100c | 903,396 | 3,154 | 27,533 | ... | 49,094 |
| 1862 | 68,800 | 7,151 | 2,393 | 21,541 | 1913 | 13,619,850c | 1,089,481 | 6,260 | 47,589 | ... | 47,377 |
| 1863 | 32,900 | 2,963 | 2,807 | 25,265 | 1914 ^d | 6,279,750c | 502,153 | 4,702 | 39,800 | ... | 18,197 |
| 1864 | 58,300 | 5,508 | 2,724 | 24,520 | 1915 ^e | 9,968,500c | 808,392 | 8,375 | 78,926 | ... | 6,127 |
| 1865 | 183,950 | 15,693 | 1,686 | 13,490 | 1916 ^e | 5,432,100 | 441,991 | 6,271 | 61,381 | ... | 10,208 |
| 1866 | 85,650 | 6,849 | 2,965 | 23,722 | 1917 ^e | 3,890,650 | 310,893 | 7,230 | 72,669 | ... | 18,959 |
| 1867 | 56,750 | 4,541 | 2,305 | 18,442 | 1918 ^e | 3,436,250 | 274,141 | 6,504 | 81,834 | ... | 16,886 |
| 1868 | 8,000 | 638 | 3,256 | 26,045 | 1919 ^e | 4,135,750 | 344,119 | 8,998 | 117,072 | ... | 18,875 |
| 1869 | 179,900 | 14,273 | 4,124 | 32,998 | 1920 ^e | 5,065,300 | 487,666 | 14,355 | 240,579 | ... | 22,121 |
| 1870 | 157,200 | 17,551 | 6,112 | 48,890 | 1921 ^e | 9,816,250 | 1,162,735 | 10,839 | 181,801 | ... | 23,073 |
| 1871 | 218,500 | 15,304 | 3,366 | 26,926 | 1922 ^e | 8,309,750 | 1,063,475 | 3,990 | 54,769 | ... | 13,328 |
| 1872 | 37,000 | 2,590 | 3,942 | 31,536 | 1923 ^e | 7,911,310 | 1,009,831 | 7,623 | 102,912 | ... | 21,161 |
| 1873 | 68,150 | 4,771 | 6,292 | 62,916 | 1924 ^e | 11,126,861 | 1,379,022 | 14,081 | 343,713 | ... | 29,606 |
| 1874 | 345,600 | 24,192 | 7,057 | 70,572 | 1925 ^e | 11,844,303 | 1,491,925 | 6,243 | 186,775 | ... | 40,136 |
| 1875 | 342,350 | 23,965 | 6,646 | 66,465 | 1926 ^e | 12,001,384 | 1,533,030 | 7,771 | 238,203 | ... | 15,036 |
| 1876 | 219,050 | 23,743 | 6,577 | 65,772 | 1927 ^e | 12,580,262 | 1,659,876 | 6,821 | 199,754 | ... | 15,818 |
| 1877 | 336,150 | 36,979 | 4,247 | 31,851 | 1928 ^e | 10,384,784 | 1,274,432 | 4,829 | 147,426 | ... | 27,062 |
| 1878 | 580,900 | 63,902 | 4,675 | 35,064 | 1929 ^e | 7,635,237 | 967,038 | 7,582 | 225,208 | ... | 35,850 |
| 1879 | 627,250 | 69,742 | 4,667 | 35,001 | 1930 ^e | 6,579,743 | 812,112 | 943 | 22,223 | ... | 40,628 |
| 1880 | 662,550 | 66,252 | 5,197 | 51,970 | 1931 ^e | 4,127,356 | 533,997 | 1,606 | 43,790 | ... | 35,333 |
| 1881 | 702,750 | 79,277 | 7,716 | 77,165 | 1932 ^e | 3,062,673 | 447,188 | 1,386 | 40,546 | ... | 42,016 |
| 1882 | 936,500 | 93,650 | 9,605 | 96,050 | 1933 ^e | 2,233,540 | 342,949 | 3,068 | 88,846 | ... | 38,852 |
| 1883 | 907,000 | 79,760 | 7,031 | 56,250 | 1934 ^e | 4,060,330 | 583,355 | 2,508 | 75,424 | ... | 20,904 |
| 1884 | 861,700 | 68,936 | 2,620 | 20,990 | 1935 ^e | 5,326,117 | 701,960 | 2,223 | 66,474 | ... | 15,234 |
| 1885 | 848,150 | 67,850 | 4,527 | 36,216 | 1936 ^e | 5,598,180 | 730,187 | 1,592 | 44,916 | ... | 12,237 |
| 1886 | 626,150 | 50,092 | 3,431 | 27,450 | 1937 ^e | 5,678,903 | 752,022 | 2,513 | 75,670 | ... | 14,491 |
| | | | | | TOTAL | 328,379,833 | 32,624,526 | 421,343 | 5,211,069 | 1,387,864 | 658,045 |

^a The exports up to the year 1834 consisted only of supplies to shipping of which no record is kept. ^b Not available. ^c Approximate figures only. ^d Six months ended 30th June. ^e Year ended 30th June. * Principally Sandalwood Oil.

APPENDIX 3.

TIMBER INDUSTRY REGULATION ACT, 1926.

Annual Report for the Year ended 31st December, 1936.

Steady improvement in the timber trade was maintained throughout the year, resulting in the employment of a greater number of men on timber holdings and a marked increase in the number of small sawmills operating throughout the South-West Division of the State.

During the year, two hundred inspections of timber holdings were made by the District and Workmen's Inspectors, covering the operations of 84 sawmills. These inspections have shown that the working and living conditions of the timber workers as required under the provisions of the Act, have, in most instances, been observed and maintained by owners and managers.

In only three instances during the past year was it necessary for the District Inspector to serve requisitions on managers requiring defects in plant to be remedied.

Notifiable accidents reported during the year and investigated by the Inspectors, totalled 683, being 104 more than for the previous year. The number of persons employed on timber holdings increased from 2,463 in 1935 to 2,766 in 1936, and although this increase in the number of employees may to some extent account for the increased number of accidents, the fact remains that the number of accidents that occurred in 1936 to every 100 persons employed was higher than for the previous year, being 24.4 as against 23.2 in 1935.

Of the accidents reported, four proved fatal. Two of these resulted from employees being struck by limbs of falling trees, one as the result of an iron skid slipping out of position and striking an employee's leg, following which complications set in, causing his death a few weeks after the accident, and in the other case the employee entered a dust race while machinery was in motion and was struck on the head by a belt clip.

The total period of incapacity of the injured persons was 18,300 days, or an average of 26.9 days per injured person, compared with an average of 24.6 days for the previous year.

No provision has been made under the Timber Industry Regulation Act for the registration of sawmills, consequently mills are frequently erected and working on private property before this Department is aware of their existence, and the Inspectors have had no opportunity of examining the plants before accidents occur. It has been recommended that the provision which exists under the Factories and Shops Act for registration of sawmills should be incorporated in the Timber Industry Regulation Act, in view of the fact that the powers of inspection under the Factories and Shops Act, so far as sawmills are concerned, have been transferred to the Timber Industry Regulation Act.

The following returns have been prepared, but owing to the cost of printing have not been included in this report:—

1. Number of notifiable accidents reported in accordance with Section 14 of the Timber Industry Regulation Act, according to months, and indicating the nationality and age of the person injured, the period of incapacity, the number of occasions on which the first-aid outfit was used and the monthly fatigue symbol during the year ended 31st December, 1936.
2. The number of notifiable accidents reported during the year 1936, according to months and days of the week on which the accidents happened.
3. By months, the time at which the notifiable accidents occurred.
4. The number of hours worked on the day and up to the time of sustaining the accident by persons injured.
5. The number of accidents reported during the year 1936, classified according to the cause of accident and location of injury.
6. The number of accidents reported during the year 1936, classified according to the cause of accident and nature of injury.
7. The number of accidents reported during the year 1936, classified according to the location and nature of injury.
8. The personal cause of the accidents reported during the year ended 31st December, 1936, as determined by the District Inspector.

S. L. KESSELL,
Controlling Officer.

Perth, 7th September, 1937.