

## CHAPTER XXII.

## FORESTRY.\*

## § 1. General.

1. **Objects of Forestry.**—Forestry is a profession based on science, art, economic and business principles, which aims to protect and treat forests as restorable resources to provide their maximum direct and indirect benefits to a country.

The direct benefits lie in the providing of essential commodities such as structural timber, poles, piles, sleepers, pulpwood, firewood, tans, oils, resins, etc.; the provision of an avenue for the healthful employment of labour in the rural forestry and sawmilling industry as well as in the transport of timber by rail, road, and water, and in numerous industries directly dependent on forest produce as a raw material. The history of all countries shows that these direct benefits are never fully appreciated until they are seriously reduced following reckless exploitation and absence of conservation measures.

The indirect benefits include regulation of stream flow from catchment areas, for a forest cover provides ideal conditions for the maximum penetration into the soil of rainfall and other precipitations which then become available for the perennial flow of streams. As a result, surface run-off after heavy rain is reduced and therefore floods are minimized in number and severity and as a corollary the ill effects of reduced and/or intermittent flow of streams in the non-rainy season are minimized. Consequent on their action in reducing surface run off in the rainy season, forests have very marked effect in minimizing the ravages of water erosion. The presence of forests in drier wind swept areas also lessens the ill effects of æolian or wind erosion. As with the direct benefits, the indirect benefits of forests unfortunately are seldom appreciated until disastrous floods, siltation of rivers and reservoirs, washing away or blowing away of the topsoil, landslides, tearing of gullies out of hillsides and deposition of stones, rocks and other debris on fertile lands following the destruction of forests, becomes a matter of public concern.

Australia has a particular interest in water and soil conservation for several reasons. The area suitable for agricultural and pastoral development is not so large that material reduction in extent or deterioration of productive capacity cannot but limit expansion and retard development; the topographical soil and climatic conditions of many parts of Australia render them potentially highly susceptible to water and wind erosion; to ensure successful cropping of very large areas of land in Australia, millions of pounds have been spent on water conservation and irrigation schemes but in the last analysis these water conservation schemes are dependent upon regular stream flow and the minimum of siltation.

Forestry aims to protect existing forests from the ravages of fire, insect, fungus and destructive agencies generally; to improve the quality and condition of forests by carrying out judicious fellings; to control exploitation so that the forest increment and not the forest capital is removed; to regenerate cut over areas; to afforest with native or exotic species denuded lands, or those which for protection or other reasons are from a national point of view better under forest than under any other crop.

2. **General Account of Forests and Timbers.**—Compared with Australia's land area of approximately three million square miles, the area of forest land capable of producing commercial timber has always been very small, occupying in the main the wetter belts of the coastal areas and the near coastal highlands. In the early days of settlement the forests, however, appeared to the small population to be practically inexhaustible. In those early days timbers were exploited chiefly on account of their accessibility, ease of working and general utility regardless of their intrinsic merits, and so it was that what are now regarded as superlative furniture and cabinet timbers were often put to quite inferior

\* A specially contributed article dealing with Forestry in Australia appeared as part of this chapter in Official Year Book No. 19 (see pp. 701-12 therein). See also "The Commonwealth Timbers of Australia, Their Properties and Uses" by I. H. Roas, published by the Council for Scientific and Industrial Research in 1947, "Timbers and Forest Products of Queensland" by E. H. S. Swain, published in 1928 and "Australian Standard Nomenclature of Australian Timbers" published by the Standards Association of Australia.

uses. Clearing of forest land by axe and fire stick to make room for crops and pastures has bitten deeply into the original forest estate which has been further degraded by recurrent forest fires. In retrospect, the damage and waste of the past is appalling, but it marked a phase of forest and timber loss which has been paralleled in the vigorous pioneering activity of the early history of many countries.

Predominantly the forests of Australia consist of relatively coarse bluish green foliated evergreen hardwoods. The characteristic genus is *Eucalyptus*, embracing five to six hundred species, which with few exceptions are endemic to Australia. The genus includes such species as the white mountain ash (*E. regnans*) of Victoria and Tasmania, and karri (*E. diversicolor*) of Western Australia, both of which for height and grandeur have few equals in the world. At the other end of the scale of size of species of this genus are dwarf types, including the small multiple stemmed species collectively known as the "mallees", which thrive in some of the drier belts. Probably not more than 80 to 90 of the eucalypts are used for sawmilling in Australia and, for one reason or another, not more than 30 to 40 are extensively exploited.

Among these outstanding eucalypts are—

- Blackbutt (*E. pilularis*) of New South Wales and Queensland ;
- Tallowwood (*E. microcorys*) of New South Wales and Queensland ;
- Spotted Gum (*E. maculata*) of New South Wales and Queensland ;
- Ironbarks (*E. spp.*) of New South Wales, Victoria and Queensland ;
- Alpine Ash (*E. gigantea*) of New South Wales, Victoria and Tasmania ;
- Redgum (*E. camaldulensis*) of New South Wales, Victoria and South Australia ;
- Mountain Ash (*E. regnans*) of Victoria and Tasmania ;
- Messmate, Stringybark or Tasmanian Oak (*E. Obliqua*) of New South Wales, Victoria and Tasmania ;
- Jarrah (*E. marginata*) of Western Australia ;
- Karri (*E. diversicolor*) of Western Australia.

The range and properties of eucalypt timbers are very great indeed. They fulfil all Australia's requirements where strength and durability are required, for example in such uses as railway sleepers, poles, piles, beams, girders, telegraph crossarms, waggon scantlings, posts, house blocks, wheelwright timber as well as for fuel, etc. In large measure they also meet general building requirements and, to a lesser extent perhaps, export packaging requirements. In recent years certain of the eucalypts have been extensively pulped for paper-making and, less widely, for the manufacture of hardboard.

A large number of other genera represented in the Australian forest flora also produce commercial hardwoods. Among the outstanding furniture cabinet and veneer timbers are red cedar (*Cedrela toona* Var. *Australis*), Queensland maple (*Flindersia brayleyana*), Southern and Northern silky oak (*Grevillea robusta* and *Cardwellia sublimis*, respectively), Queensland walnut (*Endiandra palmerstoni*), blackwood (*Acacia melanoxylon*), rose mahogany (*Dysoxylum fraserianum*), etc. Turpentine (*Syncarpia laurifolia*) ranks with the world's best as a harbour piling timber and swamp box (*Tristania suaveolens*) is almost as good. Coachwood (*Ceratopetalum apetalum*) came into prominence for rifle furniture and for aircraft ply during the last war. The foregoing are but a few examples indicating the range of use of the timbers of the Australian hardwood forests.

Indigenous softwood resources have never been large and are now seriously depleted. A remnant only remains of the forests of hoop pine (*Araucaria cunninghamii*), bunya pine (*Araucaria bidwillii*) of New South Wales and Queensland, kauri (*Agathis spp.*) of Queensland, and huon pine (*Dacrydium franklinii*), celerytop pine (*Phyllocladus rhomboidalis*) and King William pine (*Athrotaxis selaginoides*) of Tasmania.

There are still considerable areas of the slow-growing but useful white ant resisting cypress (*Callitris spp.*) in the forests of the inland areas of Queensland, New South Wales and Victoria, but many of them are being overcut and in some localities regeneration of the forests presents difficulties.

The savannah forests of the interior yield minor products such as sandalwood and tan barks, and the leaves of some of the mallees are used for oil distillation.

3. **Extent of Forests.**—According to data submitted by State Forestry authorities for the Empire Forestry Conference in 1947, the total area of forest is 119,402 square miles, or about 4 per cent. of the total land area of Australia. This forest area is distributed between the different States as follows :—

	Square miles.
New South Wales and Australian Capital Territory ..	19,364
Victoria .. .. .	27,025
Queensland .. .. .	27,050
South Australia .. .. .	(a)5,909
Western Australia .. .. .	27,154
Tasmania .. .. .	12,900
<b>Total</b> .. .. .	<b>119,402</b>

(a) Excludes 4,600 square miles of mallee containing firewood only.

The South Australian authorities especially emphasize that, after excluding the mallee firewood areas, the percentage of the remaining forest comparable with even mediocre forest land in other States is so small as to be almost negligible. Apart from this specific case it seems clear that there is considerable variation in the standards adopted for the definition of forest land. Also it should be emphasized that the figures given are stated to be rough estimates only. Furthermore, it is generally agreed that the figures for forest areas given are often far in excess of those which are both suitable for reservation and likely to be maintained for timber production. Considering these facts the percentage of Australia carrying commercial forests is very low. On the other hand it should be noted that approximately 68 per cent. of the area of the continent is practically uninhabited and carries less than one person in every eight square miles.

The table below shows a classification of the estimated total forest area referred to above :—

#### CLASSIFICATION OF FOREST AREA : AUSTRALIA.

(In square miles).

Class of Forest.	State Forest.	Communal Forest.	Private Forest.	Total.	
				Square Miles.	Percentage of Total Forest Area.
<b>Exploitable—</b>					
Softwood .. .. .	3,858	16	1,832	5,706	4.8
Mixed wood .. .. .	1,033	..	94	1,127	0.9
Hardwood .. .. .	32,016	780	13,146	45,942	38.4
<b>Total</b> .. .. .	<b>36,907</b>	<b>796</b>	<b>15,072</b>	<b>52,775</b>	<b>44.1</b>
<b>Potentially Exploitable—</b>					
Softwood .. .. .	200	..	278	478	0.4
Mixed wood .. .. .	100	..	..	100	0.1
Hardwood .. .. .	16,853	141	7,848	24,842	20.9
<b>Total</b> .. .. .	<b>17,153</b>	<b>141</b>	<b>8,126</b>	<b>25,420</b>	<b>21.4</b>
<b>Other Land Classed as Forest</b> .. .. .	<b>34,798</b>	<b>..</b>	<b>6,409</b>	<b>41,207</b>	<b>34.5</b>
<b>Grand Total</b> .. .. .	<b>88,858</b>	<b>937</b>	<b>29,607</b>	<b>119,402</b>	<b>..</b>
<b>Percentage of Total Forest Area</b> .. .. .	<b>74.3</b>	<b>0.8</b>	<b>24.9</b>	<b>..</b>	<b>100.0</b>

The bulk of the softwood forest areas of approximately 4,000 square miles are in Queensland and New South Wales. The softwood forest areas given for these States represent natural forest, a large proportion of which consists of slow growing native cypress (*Callitris spp.*) in low rainfall areas, and the per acre volume of which is comparatively low.

4. **Forest Reservations.**—The rate at which the original forest estate was being diminished had exercised the minds of far-sighted individuals as long ago as the eighties of last century and it was about that time that the first large forest reservations were made. Over the years recognition that forest reservations were inadequate became more general. It was not, however, until an Interstate Forestry Conference was held at Hobart in 1920 that a specific target to be aimed at was mentioned. The figure then agreed upon was an area of 24½ million acres of indigenous forest, which it was considered should be permanently reserved to meet the future requirements of Australia.

The forest reservations in Australia at 30th June, 1946 totalled 25,895,893 acres of which 19,042,219 acres are described as Dedicated State Forests and 6,853,674 acres as Timber and Fuel Reserves. The distribution of these areas is shown by States in § 4. 2 hereafter.

In general the timber and fuel reserves are temporary only and are liable to be alienated after the timber on them has been exploited. Some of these areas contain land of high value for forestry purposes, but the greater part does not justify permanent reservation.

If the permanently reserved areas were all of good quality, accessible, and fully productive forests supplying the class of timber required, they could be regarded as adequate for a much larger population than exists in Australia at the present time. Actually, however, a considerable proportion is in inaccessible mountainous country and many of the forests contain a mixture of species, some only of which are at present of commercial value: a good proportion consists of inferior forest and a large proportion of the whole has been seriously degraded by recurrent fires. Also the indigenous forest does not contain adequate supplies of softwoods producing commercial timbers of which our needs have to be largely met by softwood timber imported from other countries.

It is freely acknowledged by Australian forestry authorities that information on forest resources is very imperfect. It is not possible at present to give a reliable estimate of the forest areas needed to meet all future demands because of the number of unknown variables involved; in particular the yield capacity per acre, future per capita consumption of different classes of timber, and the future population. It would appear, however, that all available potentially good forest country, including adequate areas for plantations of conifers, will need to be reserved, protected and systematically managed, if Australia is to approach the goal of self sufficiency in timber supplies in the future. One of the most urgent requirements in this connexion is a comprehensive, if provisional, estimate of forest resources.

5. **Plantations.**—The inadequacy of indigenous softwood supplies has been referred to. This fact has long been recognized by the various forest authorities and considerable progress has been made in experimental planting of exotic conifers and also some substantial progress made in the establishment of commercial plantations. It was natural that this aspect of forestry received earliest attention in South Australia as it is the State most poorly endowed with natural forest and it now has the largest plantation area. For some years South Australia has been exploiting considerable quantities of timber from its plantations and these quantities will increase very substantially during the next decade.

According to statements provided by State authorities, the total effective area of plantations in Australia as at the 30th June, 1946 was 249,379 acres. Details by States are given under § 4. 3.

## § 2. Forestry Activities of the Commonwealth.

1. **General.**—When the Commonwealth of Australia was established on the 1st January, 1901, forestry was not included among the matters transferred from the States to the control of the Commonwealth, and Federal jurisdiction was therefore restricted to the then relatively unimportant forests of the Australian Territories. After the 1914-18 War these Territories (including Papua-New Guinea and Norfolk Island) covered a large area, and in the aggregate contained a substantial forest resource. In the early twenties of this century a professional forester was appointed as forestry adviser to the Commonwealth Government, and he submitted preliminary reports on the forest resources of Papua-New Guinea, Norfolk Island and the Australian Capital Territory, with suggestions for future policy.

2. **Commonwealth Forestry Bureau.**—In 1925 the Commonwealth Forestry Bureau was instituted and the Commonwealth Forestry Adviser became the Inspector-General of Forests. At this stage it was considered that the most useful contribution that the Commonwealth could make to Australian forestry was: (a) to provide better facilities than then existed for the higher training in forestry for recruits to the professional ranks of the State services and for forestry research workers; and (b) to initiate research into problems connected with silviculture, forest management and forest protection, which fundamentally were common to most, if not all of the States.

By deciding to build, equip and staff the Australian Forestry School on its own Territory the Commonwealth Government ended a long standing controversy as to the site of a National School which successive Interstate Forestry Conferences had unanimously resolved was necessary. All States sent students to the Australian Forestry School when its career commenced in Adelaide in 1926, pending completion of the school in Canberra in the following year. At this time also a nucleus of selected and qualified officers was sent abroad to undergo special courses of instruction and to obtain experience for the purpose of staffing the research side of the Bureau, which received statutory powers by an Act passed in 1930. These powers and functions subject to the regulations and the direction of the Minister, were as follows:—(a) advising the Administrations of the Territories on all matters pertaining to the management of forests; (b) the management of forests placed under its control by the Governor-General; (c) the establishment of experimental stations for the study of silviculture, forest management and forest protection; (d) the provision of educational facilities for the training of professional foresters; (e) the establishment and awarding of forestry scholarships; (f) the collection and distribution of forestry information; (g) the publication of reports and bulletins dealing with forestry; and (h) such other functions as are prescribed.

The financial situation in the years immediately following delayed development on the research side, but some progress was being made, including the establishment of experimental stations in South Australia and Tasmania on a co-operative basis with the services of those States. Plans were upset and progress retarded as a result of the 1939-45 War.

3. **Wartime Control of Timber.**—Because of its importance to the war effort of Australia, the supply of timber immediately on the outbreak of war in 1939 came under the control of the Commonwealth Department of Munitions. With the increasing importance of timber as a raw material in the production of munitions and for defence, a Controller of Timber was appointed in April, 1941 to plan and co-ordinate the supply of timber. Under an order of 8th October, 1941, the Controller of Timber was given power to prohibit the cutting of timber, to determine the priority of orders and to collect returns from persons dealing with timber.

On 23rd March, 1942, these powers were extended by the National Security (Timber Control) Regulations to cover all phases in the production, treatment and use of timber. From time to time orders were issued restricting the use of certain timbers.

4. **Forestry and Timber Bureau.**—At the end of the war, the direction of timber supplies within the boundaries of each State became the responsibility of the respective State Governments. By the Forestry and Timber Bureau Act 1946 the title of the Bureau was altered from Forestry Bureau to Forestry and Timber Bureau and its administration was placed under the charge of a Director-General in lieu of an Inspector-General of Forests.

The powers and functions of the Bureau were extended to embrace the following :—  
 (a) Collecting statistics and information regarding timber supplies and requirements in Australia, and formulating programmes in respect of the supply, production and distribution of timber in Australia, and the importation into, and exportation from, Australia of timber; (b) advising the Government of the Commonwealth or any instrumentality of that Government, or, when so requested, the Government of any State, or any instrumentality of the Government of any State, or any body or person, on matters relating to the supply, production and distribution of timber in Australia, and the importation into, and exportation from, Australia of timber; and (c) carrying out investigations and research relating to the supply, production, distribution and use of timber.

5. **The Australian Forestry School.**—The genesis of the Australian Forestry School situated in Canberra in the Australian Capital Territory, which was established by the Commonwealth Government primarily to meet the demand of the States for an institution which would give professional training at least equal to that given by the recognized Forestry Schools abroad, has been referred to in (2) above.

Under the Forestry Bureau Act 1944, which came into operation on 3rd May, 1944, a Board of Higher Forestry Education has been established to maintain the standard of the diploma course at the school and to advise as to pre-requisite university courses.

Under existing arrangements the head of the State forestry service may nominate candidates for enrolment at the school. According to the system in vogue in each State, the nomination may be made either at school-leaving age or after the candidate has successfully completed the specified university course. In the first case, the youth is helped throughout his university career and is given employment in practical work during the long vacations to test his suitability as a forestry officer; in the second case he is chosen later, and the practical tests are not made until the long vacation immediately preceding his entry to the school. The Commonwealth Government also awards to selected students ten scholarships each year of the value of £150 per year for the four years of academic study required. The possession of a nomination by a State Government Service or the receipt of a Commonwealth Government scholarship is not, however, essential to enrolment, since any candidate possessing the necessary qualifications will be accepted for the diploma course, and in special cases applicants desirous of studying a particular branch of forestry will be required to follow certain lectures only. Refresher or post-graduate courses are arranged to meet the needs of senior foresters.

A candidate for enrolment in the diploma course must possess—(a) a degree of a university; or (b) a certificate that he has completed the special two years' preliminary course at a university.

The qualifications for enrolment may be waived to assist an applicant of exceptional ability with a record of long service in a State Forestry Department, who has been specially recommended by the head of that service. Such applicants must show proof of education equal to that required for a school leaving certificate.

The course of instruction extends over three years, the first two of which are spent at the school, and the third in one of the forestry services of Australia.

The Commonwealth diploma of forestry is awarded to students on the following conditions :—(a) successful completion of theoretical course; (b) satisfactory field work during the course; and (c) one year's satisfactory practical forestry work following the school course.

Students who have passed the approved two-year preliminary science course at the Universities of Adelaide, Melbourne, Western Australia, Queensland, Sydney or Tasmania and two years of Diploma course at the School, may be granted the degree B.Sc.F. by their Universities, subject to certain conditions laid down, particulars of which may be obtained from the Registrar of the University concerned.

For various reasons the number of students attending the School each year almost since its inception has been well below the number which events have since shown were necessary to meet the demand for trained personnel. This position was naturally aggravated during the six years of war, while demands for timber and the need for expansion in all phases of forest developmental work, better protection, transport and more intensive management, have accentuated the shortage of trained staffs. The attendance at the Australian Forestry School has consequently increased substantially and large numbers of ex-servicemen are taking the University science courses which are a necessary pre-requisite to entry to the Forestry School.

Fundamental investigations connected with the properties and uses of timber and forest products generally are carried out by the Forest Products Division of the Council for Scientific and Industrial Research. These investigations cover a very wide field, e.g. pulp, paper, seasoning, structure and chemistry of wood, tans, etc.

Details can be obtained from the annual reports and publications of the Division.

### § 3. Forest Congresses.

Reference to the various forestry conferences held in Australia and elsewhere is given in Official Year Book No. 22, page 742. The first British Empire Forestry Conference was held in London in 1920. Subsequent conferences were held in Ottawa in 1923, Australia, 1928 and South Africa, 1935, but the Fifth Conference which was to have been held in India in 1940 was postponed because of the war. The Fifth Conference was eventually held in London in 1947, at which statements were presented on a more uniform basis than formerly by the various forest authorities of the British Commonwealth of Nations. These statements included references to the part played by forestry in the different parts of the Empire in the war effort. Publications issued in connexion with these conferences are available on application to the various State and Commonwealth forestry authorities.

The first session of the Food and Agriculture Organization of the United Nations held at Quebec in 1945 drew attention to the need for statistics on forest resources and the supply of, and demand for, forest products; sound forest policies; sound forest management; afforestation: forest research; forest education; integration of forest industries and avoidance of waste; and forest products research, particularly in the direction of extending utilization to little known woods.

At the second Session held at Copenhagen in 1946, the Director-General of the Forestry and Timber Bureau attended the conference as alternate delegate and adviser in forestry matters for the Commonwealth.

### § 4. State Forestry Departments.

1. **Functions.**—With the exception of Queensland, the powers and functions of State forest authorities are laid down under Forestry Acts and Regulations. In each State there is a department or commission to control forestry work. The functions of these administrations are as follows :—(a) The securing of an adequate reservation of

forest lands; (b) the introduction of proper measures for scientific control and management of forest lands; (c) the protection of forests; (d) the conversion, marketing and economic utilization of forest produce; and (e) the establishment and maintenance of coniferous forests to remedy existing deficiency in softwoods.

In Queensland, forestry is a sub-department of the Department of Public Lands.

Annual reports are issued by each State forest authority; that for Queensland being included with the report issued by the Department of Public Lands.

In Victoria a forestry school has been established at which recruits are trained for the forestry service of the State.

2. **Forest Reservations.**—As mentioned in § 1. 4 *ante*, State forest authorities agreed that, in order to secure Australia's future requirements, an area of 24½ million acres should be permanently reserved. In June, 1946 the area of State forests reserved in perpetuity totalled 19,042,219 acres or 78 per cent. of the area recommended as the goal to be attained.

In addition to the work of permanently reserving areas in each State, foresters are endeavouring to survey all timbered lands with a view to the elimination of those unsuitable for forestry. Considerable areas have been revoked in certain States, while dedications of new areas have resulted in gains to the permanent forest estate.

The Forestry Departments also control 6,853,674 acres recorded as temporary timber and fuel reserves, but, while these areas contain some land of high value for forestry purposes, the greater part does not justify permanent reservation.

In the following table details of forest areas as recorded by State Forest Authorities, distinguishing between Dedicated State Forests and Timber and Fuel Reserves, are given for each State as at 30th June, 1946.

#### AREA OF FOREST RESERVATIONS, 30th JUNE, 1946.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Total.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	
Dedicated State Forests	5,258,146	4,904,364	3,402,926	(a) 249,687	3,395,586	1,831,510	19,042,219
Timber and Fuel Reserves	1,295,948	(b)	3,041,170	..	2,138,412	(c) 378,144	6,853,674
Total	6,554,094	4,904,364	6,444,096	249,687	5,533,998	2,209,654	25,895,893

(a) Includes Timber and Fuel Reserves. (b) Not available. (c) Excludes Fuel Reserves.  
(d) Incomplete.

3. **Reforestation, Afforestation, etc.**—In the table below details are given of the area of indigenous forest improved or regenerated, the area of forest plantations and the number of persons employed by Forestry Departments for the year 1945-46.

#### FORESTRY : AREAS, AND NUMBERS EMPLOYED BY FORESTRY DEPARTMENTS, 1945-46.

Particulars.	N.S.W.	Vic.	Q'land.	S. Aust.	W. Aust.	Tas.	Total.
Total area of indigenous forest improved or regenerated .. acres	1,442,300	1,058,458	436,280	9,928	527,077	(a)	3,474,043
Total area of effective plantations—							
Hardwoods .. .. acres	421	2,592	2,713	2,232	17,065	173	25,196
Softwoods .. .. "	29,163	47,004	29,777	103,212	12,892	2,135	224,183
Number of persons employed in Forestry Departments—							
Office staff .. .. No.	(b) 272	185	151	54	51	55	768
Field staff .. .. "	176	(c) 279	1,161	456	(d) 338	81	2,491

(a) Not available. (b) Includes Wood Technology staff totalling 56. (c) Includes professional staff totalling 129. (d) Includes 236 casual hands.



4. **Revenue and Expenditure.**—The revenue and expenditure of State Forestry Departments for the years 1938-39 and 1942-43 to 1945-46 are shown below.

With the exception of Queensland and South Australia, expenditure in all States has exceeded the amount of revenue received since 1942-43. Since that year South Australia has recorded an excess of income over expenditure which is indicative of the successful development of the afforestation policy adopted in a State which is less endowed in natural forest resources than any of the other States.

**STATE FORESTRY DEPARTMENTS : REVENUE AND EXPENDITURE.**

State.	1938-39.	1942-43.	1943-44.	1944-45.	1945-46.
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**REVENUE.**

	£	£	£	£	£
New South Wales ..	224,266	467,942	530,820	572,316	525,594
Victoria ..	198,157	630,018	838,729	817,036	883,376
Queensland ..	764,557	927,982	1,094,325	1,155,425	914,824
South Australia ..	101,312	291,493	319,300	336,934	359,861
Western Australia ..	145,724	190,238	227,350	265,034	244,408
Tasmania ..	32,765	50,418	48,524	55,043	57,417
Total ..	1,466,781	2,558,001	3,059,048	3,201,788	2,985,480

**EXPENDITURE.**

	£	£	£	£	£
New South Wales ..	250,355	517,621	598,969	590,280	595,400
Victoria(a) ..	406,175	1,088,020	1,306,750	1,416,800	1,310,882
Queensland ..	764,545	691,691	845,572	857,368	904,860
South Australia ..	182,633	238,791	308,372	312,181	324,198
Western Australia(b)	164,943	176,857	262,000	286,813	262,342
Tasmania ..	71,437	60,263	59,062	66,975	135,000
Total ..	1,840,088	2,773,243	3,380,725	3,530,417	3,532,682

(a) Includes expenditure from Relief Works, 1938-39, £167,611; 1942-43, £72. (b) Includes expenditure from General Loan and Trust Funds, 1938-39, £136,254; 1942-43, £98,908; 1943-44, £124,894; 1944-45, £115,423; 1945-46, £111,317.

**§ 5. Forestry Production.**

1. **Timber.**—(i) *Production.* Particulars of logs treated and the production of rough sawn timber by sawmills and other woodworking establishments are shown by States in the following table for the year 1945-46. The information published in the corresponding table of previous issues was restricted to establishments classified as Forest Sawmills. In order not to omit the output of other mills not included under this classification, the table has been amended to include all mills as described above.

## OUTPUT OF NATIVE TIMBER : ALL MILLS, 1945-46.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Total.
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## LOGS TREATED, INCLUDING THOSE SAWN ON COMMISSION.

	'000 sup. feet.	'000 sup. feet.	'000 sup. feet.	'000 sup. feet.	'000 sup. feet.	'000 sup. feet.	'000 sup. feet.
Hardwood	269,049	313,886	124,468	9,244	261,036	163,036	1,110,719
Softwood..	110,497	32,887	165,022	50,248	3,823	10,684	373,161
Total	379,546	346,773	289,490	59,492	264,859	173,720	1,513,880

## SAWN TIMBER PRODUCED FROM LOGS ABOVE.

	'000 sup. feet.	'000 sup. feet.	'000 sup. feet.	'000 sup. feet.	'000 sup. feet.	'000 sup. feet.	'000 sup. feet.
Hardwood	180,025	190,663	77,493	5,609	105,987	89,130	648,907
Softwood..	72,083	21,948	112,419	31,504	1,660	6,263	245,877
Total	252,108	212,611	189,912	37,113	107,647	95,393	894,784

The next table shows the sawn output of native timber in sawmills and other wood-working establishments in each State for the years 1938-39 and 1942-43 to 1945-46.

## SAWN OUTPUT OF NATIVE TIMBER : ALL MILLS.

State.	1938-39.	1942-43.	1943-44.	1944-45.	1945-46.
	'000 sup. feet.	'000 sup. feet.	'000 sup. feet.	'000 sup. feet.	'000 sup. feet.
New South Wales	179,350	250,018	259,035	245,975	252,108
Victoria..	120,197	182,045	176,464	173,619	212,611
Queensland	193,250	199,398	204,201	194,138	189,912
South Australia	14,537	35,194	35,684	38,418	37,113
Western Australia	125,453	109,377	109,987	106,029	107,647
Tasmania	84,228	93,381	81,888	83,775	95,393
Total	717,015	869,413	867,259	841,954	894,784

In addition to the sawn timber shown in the table, a large amount of other timber, e.g., sleepers, piles, poles, fencing material, timber used in mining, and fuel, is obtained from forest and other lands. Complete information in regard to the volume of this output is, however, not available. In Western Australia particulars are obtained of the quantities of timber hewn by contractors for the Railway Department, mines, etc., as well as of the quantities produced by other agencies, but the figures have not been included in the preceding two tables. The quantities so produced in Western Australia in the five years shown in the preceding table were as follows:—1938-39, 35,862,540 sup. feet; 1942-43, 19,498,536 sup. feet; 1943-44, 11,698,704 sup. feet; 1944-45, 10,216,392 sup. feet; and 1945-46, 10,348,458 sup. feet. The annual reports of the Forest Departments of the States contain particulars of the output of timber from areas under departmental control, but owing to lack of uniformity in classification and measurement, accurate determination of total production cannot be made. Moreover, there is a moderate quantity of hewn timber produced from privately owned land, but information regarding output is not available.

(ii) *Stocks.* Particulars are given below of timber stocks held on 30th June, 1946, as reported by mills and other factories included in the woodworking group. These latter establishments include box and case factories and joinery works, etc. It is not known whether the particulars shown are complete.

## STOCKS OF TIMBER REPORTED BY FACTORIES, 30th JUNE, 1946.

State.	Logs.			Sawn Timber.		
	Hardwood.	Softwood.	Total.	Hardwood.	Softwood.	Total.
	'000 sup. feet.	'000 sup. feet.	'000 sup. feet.	'000 sup. feet.	'000 sup. feet.	'000 sup. feet.
New South Wales ..	12,312	6,214	18,526	12,730	21,186	33,916
Victoria ..	20,700	2,419	23,119	31,765	10,376	42,141
Queensland ..	10,081	4,534	14,615	3,604	6,681	10,285
South Australia ..	137	1,647	1,784	4,282	7,569	11,851
Western Australia ..	3,253	159	3,412	30,214	260	30,474
Tasmania ..	2,435	89	2,524	18,370	2,152	20,522
<b>Total</b> ..	<b>48,918</b>	<b>15,062</b>	<b>63,980</b>	<b>100,965</b>	<b>48,224</b>	<b>149,189</b>

2. *Paper and Wood Pulp.*—(i) *Tasmania.* The manufacture of paper from Australian-grown timber has been established in three States. In Tasmania two large mills are making paper from indigenous hardwoods. The first of these started production of paper from imported pulp at Burnie in August, 1938, and so continued until the pulp mill, using local hardwood, came into operation a few months later. At this mill, pulp is produced by the soda process and the caustic soda necessary for cooking the wood and chlorine for bleaching the pulp are produced by a separate plant located alongside the mill. Two paper-machines are operated. The larger machine has the capacity to produce paper 180 inches wide at 800 feet per minute, while the smaller machine is capable of producing paper 90 inches wide at about 400 feet per minute. The paper produced covers a wide range of high class printing, writing, drawing, duplicating and blotting papers. At Boyer on the Derwent River, near Hobart, production of newsprint commenced in February, 1941. The newsprint is manufactured from local ground wood pulp to which is added a small proportion of sulphite pulp imported from Canada. The paper-making machine installed is capable of making paper 161 inches wide at the rate of 1,200 feet per minute, and when running at full capacity can produce about 540 tons of newsprint per week. At both these mills logs are taken from the forests by means of tractors and transported to the mills by rail. Power is supplied by the Tasmanian Hydro-electric Commission and hardwood not suitable for pulping is used as fuel. During 1945-46, 51,590 cords of pulp wood and 38,293 cords of firewood were delivered to these mills.

(ii) *Victoria.* In Victoria the production of wood pulp for paper-making commenced in January, 1937, with a pilot plant having the capacity of about 3,000 tons of air dried pulp per annum. In October, 1939 the main plant at Maryvale, with a capacity of 27,000 tons of pulp per annum, commenced operations. Associated with the pulp mill is a paper-making plant capable of producing about 20,000 tons of kraft paper per annum. The timber used at this mill consists mainly of hardwoods at present unsuitable for other purposes. In addition, a small quantity of pine, mainly thinnings, mill waste and special softwood for production of cellulose is used. During 1945-46 the wood taken from Crown Lands for the production of wood pulp and cellulose amounted to 1,812,293 cubic feet of which 1,744,176 cubic feet were hardwoods and 68,117 cubic feet were radiata pine.

(iii) *South Australia.* In South Australia a pulp and paper board mill commenced operations during 1941-42 near Millicent. When completed and in full production the mill will use considerable quantities of softwoods from the Mount Burr and Penola pine

plantations. During 1945-46, 5,253,961 super. feet of pulp wood were produced of which 4,682,719 super. feet were supplied to the pulp mill and 571,242 super. feet for the production of cellulose.

3. Other Forest Products.—(i) *Veneers, Plywood, Etc.* Cutting of timber for the manufacture of veneers, plywood, etc., has been carried out in most States for a number of years. Recently, however, this has been considerably extended in all States, and much greater use has been made of local-grown timbers, both hard and softwoods. In recent years special attention has been paid to the selection of logs suitable for peeling. In 1945-46 the quantity of plywood produced amounted to 106,856,615 square feet ( $\frac{3}{8}$ " basis) and veneers to 38,132,562 square feet ( $\frac{3}{8}$ " basis).

(ii) *Charcoal.* With the availability of additional petrol supplies towards the end of the 1939-45 War, the production of charcoal, which previously had a wide use as a substitute fuel during the war years, was considerably reduced and is now little higher than normal.

(iii) *Eucalyptus Oil.* Oil may be distilled from the foliage of all varieties of eucalyptus, and several of them furnish a product widely known for its commercial and medicinal uses. Complete information regarding Australian production and consumption of eucalyptus oil is not available, but considerable quantities are manufactured, particularly in Victoria. Oversea exports amounted in 1938-39 to £86,714; in 1942-43 to £94,050; in 1943-44 to £124,148; in 1944-45 to £136,297; and in 1945-46 to £201,948. The bulk of the product is shipped to the United Kingdom and the United States of America with Victoria as the principal exporting State. Large quantities of the crude oil are used locally in flotation processes in connexion with the recovery of gold and other minerals.

(iv) *Sandalwood and Sandalwood Oil.* Most of the sandalwood is produced in Western Australia where considerable quantities are gathered each year for export to Asiatic countries. Small quantities are also produced in South Australia, Queensland and New South Wales. Details of exports of sandalwood are shown in paragraph 3 (ii), § 7. Oil distilled from Western Australian sandalwood has a medicinal value and is used extensively in the manufacture of perfumes. Quantities of this oil are exported annually to the Eastern States of Australia and oversea countries, principally the United Kingdom. Oversea exports of Australian sandalwood oil amounted in 1938-39 to £13,964; in 1942-43 to £2,834; in 1943-44 to £34; in 1944-45 to £11,390; and in 1945-46 to £19,560.

(v) *Grass Tree or Yacca Gum.* South Australia is the chief State producing this gum, which is used in the preparation of varnishes and lacquers. Quantities are also obtained in New South Wales and Western Australia but these are small. The production in South Australia during 1945-46 amounted to 991 tons, whilst the exports from Australia amounted to 832 tons valued at £10,659

(vi) *Tan Barks.* The forests of Australia are capable of yielding a wealth of tanning materials; many species of eucalyptus and other genera contain varying proportions of tannin, chiefly in the bark, but also in the wood and twigs. Although many of these species contain higher percentages of tannin than are found in the barks of oak, chestnut and hemlock, formerly the chief source of tannin material in the northern hemisphere, scattered distribution has resulted in the richest tan-bearing species only being used in Australia. These are:—Golden wattle (*Acacia pycnantha*), black or green wattle (*Acacia decurrens* or *mollissima*), and mallet (*Eucalyptus astringens*).

Up to 1913 the production of wattle bark was more than sufficient for local requirements, and an export trade was built up. The supply diminished during the six years ended 1926-27, and Australia imported on the average about 2,900 tons each year from Natal, where the plantations were originally started from Australian seed. From 1927-28 to 1938-39 exports exceeded imports in every year except 1936-37, but since 1939-40 there has been a considerable excess of imports. The chief exporting States

are Western Australia, South Australia and Tasmania. This matter is referred to in tables appearing in § 7 following. The other valuable tan bark, mallet (*Eucalyptus astringens*) of Western Australia, is not extensively used in Australian tanneries, but it is exported to Europe and other countries, where it is used for producing a tannin extract. A brief account of work done by the Council for Scientific and Industrial Research in connexion with tanning materials is given in Official Year Book No. 22, p. 743. The production of extract from the bark of karri (*Eucalyptus diversicolor*), of which very large quantities are available at karri sawmills, has passed the experimental stage, and private enterprise has started production on a commercial scale. The experimental work in kino impregnated marri (*Eucalyptis calophylla*) bark is not yet complete. The production of tan bark in Australia approximated 25,000 tons per annum in the years prior to 1939. Since then production has declined and in 1945-46 reached the level of about 8,800 tons. It is noted, however, that this diminution is offset by the increased use of vegetable tanning extract which rose from 3,686 tons in 1938-39 to 12,015 tons in 1945-46.

4. Value of Production—Gross and Net.—(i) *General.* The values of forestry production on a gross, local and net basis are shown in the following table for the years 1944-45 and 1945-46.

## GROSS, LOCAL AND NET VALUE OF FORESTRY PRODUCTION.

State.	Gross Production Valued at Principal Markets.	Marketing Costs.	Gross Production Valued at Place of Production.	Value of Other Materials Used in Process of Production.	Net Value of Production.(a)
1944-45.					
	£	£	£	£	£
New South Wales ..	3,438,000	117,000	3,321,000	..	3,321,000
Victoria ..	2,884,556	319,292	2,565,264	393,423	2,171,841
Queensland ..	2,936,000	420,000	2,516,000	..	2,516,000
South Australia ..	1,144,008	74,820	1,069,188	..	1,069,188
Western Australia ..	1,575,877	210,503	1,365,374	414	1,364,960
Tasmania ..	874,820	58,590	816,230	..	816,230
Total ..	12,853,261	1,200,205	11,653,056	393,837	11,259,219
1945-46.					
	£	£	£	£	£
New South Wales ..	3,877,000	132,000	3,745,000	..	3,745,000
Victoria ..	3,127,887	301,658	2,826,229	415,000	2,411,229
Queensland ..	2,922,000	420,000	2,502,000	..	2,502,000
South Australia ..	1,246,105	75,707	1,170,398	..	1,170,398
Western Australia ..	1,678,763	219,835	1,458,928	155	1,458,773
Tasmania ..	1,010,640	37,540	973,100	..	973,100
Total ..	13,862,395	1,186,740	12,675,655	415,155	12,260,500

(a) No deduction has been made for depreciation and maintenance.

(ii) *States, 1936-37 to 1945-46.* In the following table the net value of forestry production and the net value per head of population are given by States for the years 1936-37 to 1945-46.

## NET VALUE OF FORESTRY PRODUCTION.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Total.
NET VALUE.(a)							
	£	£	£	£	£	£	£
1936-37 ..	2,006,000	731,777	2,186,000	570,692	1,314,152	407,300	7,305,921
1937-38 ..	2,170,000	1,020,174	2,514,000	570,190	1,272,707	431,200	7,996,280
1938-39 ..	2,261,000	1,067,732	2,362,000	542,465	1,117,335	399,500	7,780,032
1939-40 ..	2,317,000	1,108,864	2,531,000	605,419	1,087,734	452,520	8,132,537
1940-41 ..	2,576,000	1,355,402	2,731,000	693,162	1,322,138	516,000	9,196,702
1941-42 ..	3,150,000	1,594,613	2,423,000	870,332	1,272,606	722,100	10,050,681
1942-43 ..	3,185,000	1,858,426	2,328,000	1,011,491	1,422,782	813,040	10,580,539
1943-44 ..	3,285,000	1,952,278	2,822,000	1,028,671	1,372,336	764,010	11,224,295
1944-45 ..	3,321,000	2,171,841	2,516,000	1,069,188	1,361,960	816,230	11,259,219
1945-46 ..	3,745,000	2,411,229	2,502,000	1,170,398	1,458,773	973,100	12,260,500

## NET VALUE PER HEAD OF MEAN POPULATION.

	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1936-37 ..	0 15 8	0 7 11	2 4 5	0 19 5	2 18 2	1 15 1	1 1 5
1937-38 ..	0 16 1	0 11 1	2 10 6	0 19 4	2 15 8	1 16 8	1 3 4
1938-39 ..	0 16 7	0 11 5	2 6 11	0 18 3	2 9 7	1 13 9	1 2 6
1939-40 ..	0 17 0	0 11 9	2 9 10	1 0 3	2 6 5	1 17 10	1 3 3
1940-41 ..	0 18 6	0 14 1	2 13 0	1 0 3	2 15 11	2 3 0	1 6 1
1941-42 ..	1 2 7	0 16 5	2 6 7	1 9 0	2 13 6	3 0 2	1 8 2
1942-43 ..	1 2 4	0 18 10	2 4 10	1 13 0	2 19 4	3 7 6	1 9 3
1943-44 ..	1 3 1	0 19 7	2 13 5	1 13 5	2 17 0	3 2 9	1 10 11
1944-45 ..	1 3 1	1 1 7	2 7 0	1 14 2	2 16 0	3 6 4	1 10 9
1945-46 ..	1 5 9	1 3 11	2 6 1	1 17 0	2 19 4	3 18 0	1 13 1

(a) No deduction has been made for depreciation and maintenance.

5. *Employment.*—(i) *Forestry Operations.* The estimated number of persons engaged in forestry operations as at June, 1946 is shown in the following table. These estimates, which have been based upon pay-roll tax and other data, include working proprietors but exclude those engaged in the sawmilling industry whose particulars are given in the next table.

## ESTIMATED NUMBERS ENGAGED IN FORESTRY, JUNE, 1946.

(Excluding Sawmilling Industry).

Sex.	N.S.W. (a)	Victoria.	Q'land.	S. Aust. (b)	W. Aust.	Tasmania.	Total.
	No.	No.	No.	No.	No.	No.	No.
Males ..	6,809	6,142	4,763	1,260	1,446	1,593	22,013
Females ..	20	11	6	34	13	8	92
Total ..	6,829	6,153	4,769	1,294	1,459	1,601	22,105

(a) Includes Australian Capital Territory.

(b) Includes Northern Territory.

(ii) *Milling Operations.* Details of the number engaged, including working proprietors, in the milling operations of sawmills are given in the next table. Further details regarding the operations of these mills are given in Chapter XXIV.—“Manufacturing Industry”.

## SAWMILLS : NUMBER ENGAGED, 1945-46.

Sex.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Total.
	No.	No.	No.	No.	No.	No.	No.
Males .. ..	6,062	4,388	4,651	1,316	2,118	1,762	20,297
Females .. ..	215	105	158	96	15	27	616
<b>Total</b> .. ..	<b>6,277</b>	<b>4,493</b>	<b>4,809</b>	<b>1,412</b>	<b>2,133</b>	<b>1,789</b>	<b>20,913</b>

## § 6. Commercial Uses of Principal Australian Timbers.

1. *General.*—The uses of the more important Australian timbers are many and varied, and are indicated in previous issues of the Official Year Book. (See Official Year Book No. 6, pp. 454-6 and Official Year Book No. 10, Section III., §§ 7 and 8).

A list of Australian timbers best known on the local markets appeared in Official Year Book No. 20, p. 713.

2. *Nomenclature of Australian Timbers.*—The vernacular names applied to the gums, ironbarks, etc., in the various States, and even in different parts of the same State, do not always refer to identical timbers, whilst in other cases the same name may apply to different timbers. This naturally leads to a good deal of confusion and the difficult problem of providing a solution was referred by the timber trade to The Standards Association of Australia which prepared and published lists showing for each of the most important commercial timbers in Australia, the standard trade common names and their appropriate associated names. The adoption of the standard trade common names recommended by the Association would eliminate confusion and materially assist all those engaged in the production, marketing and use of timber in Australia.

## § 7. Oversea Trade.

1. *Imports.*—(i) *Dressed Timber.* The quantities and values of timber imported into Australia during the years 1938-39 and 1944-45 to 1946-47 inclusive are shown in the following table according to countries of origin :—

## DRESSED TIMBER : IMPORTS INTO AUSTRALIA.

Country of Origin.	Quantity.				Australian Currency Values.			
	1938-39.	1944-45.	1945-46.	1946-47.	1938-39.	1944-45.	1945-46.	1946-47.
	'000 sup. ft.	'000 sup. ft.	'000 sup. ft.	'000 sup. ft.	£A.	£A.	£A.	£A.
United Kingdom .. ..	1	..	..	..	48	..	1	126
Canada .. ..	8,927	5,353	7,950	2,037	99,797	107,380	217,107	72,078
New Zealand .. ..	..	150	555	312	..	7,425	25,836	15,861
Other British Countries .. ..	3	19	..	1	23	172	..	41
Norway .. ..	4,209	..	..	44	47,570	..	..	1,215
Sweden .. ..	1,978	..	..	1,534	26,687	..	..	61,045
U.S. of America .. ..	2,212	722	2,179	1,153	24,203	69,028	81,686	67,299
Other Foreign Countries .. ..	418	..	..	..	6,771	..	..	..
<b>Total</b> .. ..	<b>17,778</b>	<b>6,244</b>	<b>10,684</b>	<b>5,081</b>	<b>205,099</b>	<b>184,005</b>	<b>324,720</b>	<b>217,665</b>

The figures in the table above exclude items such as architraves, veneers, plywood, staves, etc., quantities for which are either not shown, or are expressed in dissimilar units in the Customs entries. The total value of the items so excluded amounted to £A.138,208 in 1946-47.

Prior to the 1939-45 War the bulk of the imports of dressed timber came from Canada, Norway, Sweden and the United States of America; but after the outbreak of the war increased quantities were imported from New Zealand. Practically the whole of this timber consisted of softwoods—deal and pine—used for lining, weatherboards, flooring, shelving, doors, box-making, etc.

(ii) *Undressed Timber*. Australian imports of undressed timber for the years 1938-39 and 1944-45 to 1946-47 are shown hereunder:—

**UNDRESSED TIMBER (a) : IMPORTS INTO AUSTRALIA.**

Country of Origin.	Quantity.				Australian Currency Values.			
	1938-39.	1944-45.	1945-46.	1946-47.	1938-39.	1944-45.	1945-46.	1946-47.
	'000 sup. ft.	'000 sup. ft.	'000 sup. ft.	'000 sup. ft.	£A.	£A.	£A.	£A.
United Kingdom ..	115	47	209	199	10,969	4,151	12,536	20,075
Canada ..	296,948	61,876	70,171	87,853	1,225,650	763,061	884,813	2,537,499
Malaya (British) ..	165	..	..	41	1,389	..	..	2,101
New Zealand ..	11,193	3,235	5,037	7,199	173,556	63,294	135,058	170,072
Other British Countries ..	10,840	1,603	1,097	3,269	75,136	14,335	10,611	72,473
Japan ..	374	..	..	..	8,439	..	..	..
Netherlands East Indies ..	20	..	..	..	130	..	..	..
New Caledonia ..	1,671	..	..	..	6,368	..	..	226
Philippine Islands ..	6,879	..	3	..	72,921	..	39	..
Sweden ..	4,654	..	..	1,014	40,592	..	..	36,468
United States of America ..	12,245	19,192	26,814	22,348	210,092	317,015	474,670	525,515
Other Foreign Countries ..	2,994	36	81	3	29,694	1,797	1,107	2,735
<b>Total ..</b>	<b>348,098</b>	<b>85,980</b>	<b>103,412</b>	<b>121,926</b>	<b>1,854,936</b>	<b>1,163,653</b>	<b>1,518,834</b>	<b>3,367,164</b>

(a) Excludes timber not measured in super. feet.

By far the larger proportion of the undressed timber imports consists of softwood such as oregon, redwood, hemlock, western red cedar and yellow pine from Canada and the United States of America; and kauri, rimu and white pine from New Zealand. Amongst the hardwoods imported the principal are oak from the United States of America and furniture woods from the Pacific Islands.

2. Exports.—(i) *Undressed Timber (excluding Railway Sleepers)*. The quantity and value of undressed timber, exclusive of railway sleepers, exported during the years 1938-39 and 1944-45 to 1946-47 are shown below, together with the countries of destination.

**UNDRESSED TIMBER (EXCLUDING RAILWAY SLEEPERS) (a) : EXPORTS FROM AUSTRALIA.**

Country to which Exported.	Quantity.				Value.			
	1938-39.	1944-45.	1945-46.	1946-47.	1938-39.	1944-45.	1945-46.	1946-47.
	'000 sup. ft.	'000 sup. ft.	'000 sup. ft.	'000 sup. ft.	£A.	£A.	£A.	£A.
United Kingdom ..	11,750	3,200	4,287	6,362	137,927	90,280	130,841	198,275
Canada ..	223	278	336	296	4,723	7,836	9,541	10,066
Hong Kong ..	98	..	214	467	1,058	..	6,974	15,971
Mauritius ..	354	..	99	371	4,520	..	2,609	10,148
New Zealand ..	17,145	3,694	5,384	7,152	245,194	103,523	139,159	186,430
Pacific Islands—								
Fiji ..	838	465	231	757	15,570	12,255	6,209	22,810
Gilbert and Ellice Islands								
Colony ..	63	4	166	74	1,076	130	20,313	2,472
Other Islands ..	736	6	94	1,008	12,825	148	28,350	19,460
Union of South Africa ..	7,164	1,753	1,393	1,951	80,668	39,073	36,056	55,387
Other British Countries ..	643	2	275	206	6,862	44	29,210	8,036
Belgium ..	1,286	..	..	352	19,347	..	..	12,657
United States of America ..	867	94	56	390	26,506	3,265	1,947	14,409
Other Foreign Countries ..	2,630	220	136	210	32,470	7,862	4,482	3,572
<b>Australian Produce ..</b>	<b>43,797</b>	<b>9,716</b>	<b>12,671</b>	<b>19,596</b>	<b>588,746</b>	<b>264,416</b>	<b>415,691</b>	<b>559,693</b>
<b>Other Produce ..</b>	<b>541</b>	<b>11</b>	<b>27</b>	<b>583</b>	<b>6,079</b>	<b>413</b>	<b>951</b>	<b>10,725</b>
<b>Total ..</b>	<b>44,338</b>	<b>9,727</b>	<b>12,698</b>	<b>20,179</b>	<b>594,825</b>	<b>264,829</b>	<b>416,642</b>	<b>570,418</b>

(a) Excludes timber not measured in super. feet.



The bulk of the exports of undressed timber were consigned to New Zealand, the United Kingdom, South Africa and the United States of America, and consisted largely of the Western Australian hardwoods, jarrah and karri, which have earned an excellent reputation for such purposes as harbour works and wood paving, etc. Considerable quantities of pole, pile and girder timber are also exported from New South Wales to New Zealand.

(ii) *Railway Sleepers.* Particulars of the quantities and values of railway sleepers exported, which are excluded from the previous table relating to undressed timber, are shown below.

## RAILWAY SLEEPERS : EXPORTS FROM AUSTRALIA.

Country to which Exported.	Quantity.				Value.			
	1938-39.	1944-45.	1945-46.	1946-47.	1938-39.	1944-45.	1945-46.	1946-47.
	'000 sup. ft.	'000 sup. ft.	'000 sup. ft.	'000 sup. ft.	£A.	£A.	£A.	£A.
United Kingdom ..	1,438	..	497	194	14,467	..	14,034	4,683
Ceylon ..	5,334	..	540	..	53,339	..	12,902	..
Hong Kong ..	..	..	43	29	..	..	934	544
Mauritius ..	563	..	..	645	6,216	..	..	17,876
New Zealand ..	16,896	1,967	6,791	4,231	165,303	31,617	117,325	76,642
Pacific Islands (British) ..	201	102	138	180	2,341	1,694	2,440	3,160
Union of South Africa ..	4,941	539	841	614	49,412	13,377	23,975	16,725
Other British Countries ..	..	..	135	2,104	..	..	2,749	95,162
Egypt ..	4,198	4	..	..	41,986	176	..	..
Iran (Persia) ..	271	..	..	..	2,707	..	..	..
Iraq ..	165	..	..	..	1,696	..	..	..
Other Foreign Countries ..	29	122	98	342	291	1,482	1,096	5,606
Total ..	34,036	2,734	9,083	8,339	337,758	48,346	175,455	220,398
Number of Sleepers '000	1,268	117	363	332	..	..	..	..

3. Classification of Imports and Exports.—(i) *General.* The quantities of timber, according to items, imported and exported during the year 1946-47 are shown in the following table :—

TIMBER : ITEMS IMPORTED AND EXPORTED FROM AUSTRALIA,  
QUANTITIES, 1946-47.

Description.	Unit of Quantity.	Imports.	Exports.	Excess of Imports over Exports.
Dressed ..	Sup. ft.	5,081,109	311,610	4,769,499
Undressed—				
Railway Sleepers ..	..	(a)	8,339,197	} 93,407,780
Other ..	..	121,925,952	20,178,975	
Architraves, mouldings, etc. ..	Lin. ft.	..	91,758	91,758
Plywood, veneered or otherwise ..	Sq. ft.	14,326	31,111	16,785
Palings ..	..	..	..	..
Shingles ..	..	100	3,766	3,666
Staves—				
Dressed, etc. ..	No.	12,401	150	12,251
Undressed ..	..	..	..	..
Laths ..	..	37,500	165,150	127,650
Wood pulp ..	Ton	33,238	(a)	..
Veneers ..	Sq. ft.	8,652,238	1,200	8,651,038

(a) Not recorded separately.

NOTE.—The minus sign (—) denotes an excess of exports.

Similar particulars of the values of imports and exports during the year 1946-47 are shown hereunder :—

**TIMBER : ITEMS IMPORTED AND EXPORTED FROM AUSTRALIA,  
VALUES, 1946-47.**

Description.	Imports.	Exports.	Excess of Imports over Exports.
	£A.	£A.	£A.
Dressed	217,665	7,160	210,505
Undressed—			
Railway Sleepers	(a)	220,398	} 2,576,348
Other	3,367,164	570,418	
Architraves, mouldings, etc.		1,081	
Plywood, veneered or otherwise	77	1,108	— 1,031
Palings			
Shingles		1,389	— 1,388
Staves—			
Dressed, etc.	1,390	34	1,356
Undressed			
Laths	25	331	— 306
Doors	3	1,096	— 1,093
Wood pulp	978,048	(a)	
Veneers	132,836	55	132,781
Spokes, rims, felloes, etc.	46	5,458	— 5,412
Other..	513,353	427,370	85,983
<b>Total</b>	<b>5,210,608</b>	<b>(b)1,235,898</b>	<b>(b)3,974,710</b>

(a) Not recorded separately. (b) Exports of wood pulp not included.

NOTE.—The minus sign (—) denotes an excess of exports.

(ii) *Sandalwood.* A considerable quantity of sandalwood is exported, principally from Western Australia, to Hong Kong and China, where it is highly prized and largely used for artistic and ceremonial purposes. Particulars for the four years 1943-44 to 1946-47 are compared with 1938-39 in the following table :—

**SANDALWOOD : EXPORTS FROM AUSTRALIA.**

Country to which Exported.	Quantity.					Value.				
	1938-39.	1943-44.	1944-45.	1945-46.	1946-47.	1938-39.	1943-44.	1944-45.	1945-46.	1946-47.
	Tons.	Tons.	Tons.	Tons.	Tons.	£A.	£A.	£A.	£A.	£A.
Hong Kong	80	..	..	45	676	18,709	..	..	2,250	66,083
India	25	..	..	..	25	842	..	..	..	1,500
Malaya (British)	92	..	..	85	70	3,149	..	..	4,750	12,200
Other British Countries	17	..	..	13	25	545	..	..	584	2,730
China	686	..	..	..	325	18,511	..	..	..	27,741
Other Foreign Countries	17	..	..	..	..	574	..	..	..	13
<b>Total</b>	<b>1,648</b>	<b>..</b>	<b>..</b>	<b>143</b>	<b>1,121</b>	<b>42,330</b>	<b>..</b>	<b>..</b>	<b>7,584</b>	<b>110,267</b>

(iii) *Tan Bark.* Tan bark appears both as an export and an import in the Australian trade returns. The following table refers to exports for the three years ended 1946-47, compared with 1938-39.

## TAN BARK : EXPORTS FROM AUSTRALIA.

Country to which Exported.	Quantity.				Value.			
	1938-39.	1944-45.	1945-46.	1946-47.	1938-39.	1944-45.	1945-46.	1946-47.
	Cwt.	Cwt.	Cwt.	Cwt.	£A.	£A.	£A.	£A.
India .. .. .	..	..	..	7,981	..	..	..	11,706
New Zealand .. .. .	7,620	..	1	..	3,897	..	6	..
Other British Countries .. .. .	40	..	..	522	27	..	..	768
Germany .. .. .	8,251	..	..	..	3,582	..	..	..
Other Foreign Countries.. .. .	2,309	..	..	1,170	1,124	..	..	558
<b>Total .. .. .</b>	<b>18,220</b>	<b>..</b>	<b>1</b>	<b>9,673</b>	<b>8,630</b>	<b>..</b>	<b>6</b>	<b>13,032</b>

(a) There were no exports for the years 1942-43 to 1944-45.

For a number of years prior to 1927-28 Australia had to import large quantities of tanning bark, but thereafter imports dropped to negligible quantities and exports rose annually to 89,061 cwt. in 1931-32. Since 1931-32 there has been a diminution of exports and by 1941-42 these had reached the low level of 421 cwt. The quantity imported did not rise appreciably until 1939-40 when imports were more than three times that of the previous year. Since that year there has been a considerable excess of imports; the Union of South Africa being almost the sole source of supply.

A comparison of the imports and exports of tan bark during 1938-39 and the four years ended 1946-47 is given in the following table :—

## TAN BARK : IMPORTS AND EXPORTS, AUSTRALIA.

Particulars.	1938-39.	1943-44.	1944-45.	1945-46.	1946-47.
<b>QUANTITIES—</b>	<b>Cwt.</b>	<b>Cwt.</b>	<b>Cwt.</b>	<b>Cwt.</b>	<b>Cwt.</b>
Imports .. .. .	6,199	105,315	90,024	86,367	65,056
Exports .. .. .	18,220	..	..	1	9,673
Excess of imports over exports	— 12,021	105,315	90,024	86,366	55,383
<b>VALUES—</b>	<b>£A.</b>	<b>£A.</b>	<b>£A.</b>	<b>£A.</b>	<b>£A.</b>
Imports .. .. .	2,547	67,075	59,955	62,601	54,335
Exports .. .. .	8,630	..	..	6	13,032
Excess of imports over exports	— 6,083	67,075	59,955	62,595	41,303

NOTE.—The minus sign (—) denotes an excess of exports.

The imports consist almost exclusively of wattle bark from the plantations in South Africa. One species of Australian wattle *Acacia mollissima* is chiefly relied upon for the production of wattle bark in the South African plantations. Seed has been tried from New South Wales, Tasmania and Victoria, but it is stated that most of the seed is obtained from the best wattle bark areas in eastern Tasmania and western Victoria.

Two reasons are given to account for the success of the industry in the Union of South Africa :—(a) It is found that the treeless, grassy highlands of Natal are specially suitable for wattle culture, and the trees can therefore be grown in rows and economically attended to, while the necessary bark sheds and other appurtenances can be placed in the most advantageous positions; and (b) the availability of native labour.

(iv) *Other Tanning Substances.* Considerable quantities of tanning substances other than bark are imported annually into Australia. The total value in Australian currency of the importations in 1946-47 was £336,045, and was composed as follows :—Tanners' Bates, £2,704; wattle bark extract, £289,098; quebracho extract, £9; other extract, £9,924; and volonia, myrobalans, catch, etc., £34,310.

Exports of tanning extracts from Australia amounted to £58,084 in 1946-47.