

## CHAPTER XXIV.

## FORESTRY.\*

## § 1. General.

1. **Objects of Forestry.**—Scientific forestry aims at the preservation and development of existing forest areas by safeguarding them against fire, pests and destructive agencies generally, by expert supervision of the removal of timber, by judicious thinning and by reforestation of denuded areas with suitable forest growths of local or exotic origin. It provides also for the continuance of this indispensable form of national wealth by the afforestation of available bare lands proved capable of producing various timbers. Only small areas of virgin forests still remain in Australia, as extensive inroads have been made by timber-getters, by agriculturalists and by pastoralists—who have destroyed large areas by “ring-barking”—and it is not unlikely that climatological changes have resulted therefrom. It is recognized that beneficial consequences follow on the planting of trees on denuded lands, or along eroding coasts, and that a forest covering tends to regulate to the best advantage the effects of rainfall. The existing virgin forests consist of hardwood jungle, or brush, with very little softwood, and the need for extensive softwood planting is urgent.

Efficient forestry is of particular interest in connexion with the Murray River Basin, where a large expenditure from the public funds has been incurred in the provision of locks and weirs and in the formation of irrigation settlements in the lower course of the river. The stability of flow of this river in so far as it can be assured by forest plantation may be regarded as of national importance.

Successful planting of exotics in various parts of Australia has demonstrated that both climate and soil are suitable for the cultivation of a number of highly serviceable softwoods.

2. **Extent of Forests.**—(i) *Australia.* The bulk of the present local timber supply comes from the thickly forested areas in the 30-inch and over rainfall belt south of the tropics, and the 70-inch and over rainfall belt within the tropics. The total forest area included in the divisions specified is comparatively small, and is confined to the following regions:—(a) The coastal belt in the extreme south-west of Western Australia, from a little north of Perth to Albany; (b) the Otway country in the south of Victoria, and the whole of the south-eastern portion of that State; (c) the mountain forests of Victoria and New South Wales; (d) the coastal districts of New South Wales and Queensland; (e) the greater portion of Tasmania; (f) the forests on the Murray River near Echuca; and (g) the cypress pine belt from the Murray northward to Queensland and westward of the coastal belt.

Over 90 per cent. of the timber trees of Australia consists of hardwoods belonging to the genus *Eucalyptus* (Gum Trees). Including the mallees over 400 species are now recognized, but the chief commercial varieties are confined to about 50 species.

In addition to the hardwood forests and the cypress pine belt the coastal strip in Queensland and northern New South Wales provides “rain” or “brush” forests. These tropical forests furnish the serviceable hoop pine and furniture timbers such as black bean, Queensland walnut and maple, silkwood, etc.

\* 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).

The drier wooded area of the continent contains a large number of xerophilous trees and woody shrubs which thrive in regions receiving less than 10 inches of rain per annum. Country devoid of tree growth is rare. Unsuitable soil conditions such as basalt formations, clay-pans, rock exposures or sand-dunes are as a rule more responsible for treeless areas than lack of rainfall. The 300-mile stretch of the Nullarbor Plain is a treeless area where the non-retentive limestone foundation accentuates the effects of a low rainfall. While, however, the major portion of Australia carries trees, and may be said to be wooded (the term "desert" applying to relatively small areas only), dense forest is confined to a very narrow fringe. The savannah forests of the interior yield minor products such as sandalwood and tan barks, but do not produce timber. These open park-like formations carry scattered trees of low habit only. Practically the whole of Papua and New Guinea carries or has carried dense forests, the exceptions being certain small dry belts where the rainfall is less than 70 inches. Norfolk Island was originally covered with a thick jungle.

Special articles relating to Australian Eucalyptus timbers and the chemical products of eucalypts appear in Official Year Book No. 10, pp. 85-98.

Scientific surveys of the forests of the various States have not yet been completed and there are, in consequence, conflicting reports regarding the total forest area of Australia. At the Interstate Conference on Forestry, held at Hobart in April, 1920, it was resolved that a forest area of 24,500,000 acres was necessary to provide for the future requirements of Australia. This area was subsequently adopted at the Premiers' Conference held in May, 1920. Expert foresters, however, consider that approximately 19,500,000 acres represent the possible limit for permanent reservation in Australia. The distribution of the latter area throughout the States was estimated as follows:—

## ESTIMATED FOREST AREA.

State.	Total Forest Area.	Percentage on Total Area.
	Acres.	Per Cent.
New South Wales .. .. .	4,000,000	2.02
Victoria .. .. .	5,500,000	9.78
Queensland .. .. .	6,000,000	1.40
South Australia .. .. .	500,000	0.21
Western Australia .. .. .	3,000,000	0.48
Tasmania .. .. .	500,000	2.98
<b>Australia .. .. .</b>	<b>19,500,000</b>	<b>1.02</b>

(ii) *Comparison with Other Countries.* The table hereunder shows the absolute and relative forest areas of Australia and other countries, and the relative areas owned by the State, by Public Institutions and by private individuals, in so far as the details are available. The term "Public Institutions" appears to include local governmental and ecclesiastical authorities, while those held by public companies, co-operative societies, etc., are included with private individuals.

The figures are based on information supplied to the International Institute of Agriculture and are the latest available. Comparisons of the returns for different countries are, however, subject to the qualification that the significance of the term "forest" is not identical in all cases. In older countries, and chiefly in Europe, scientific forestry has been practised for centuries whereas in newer lands, such as Australia, Canada, etc., it is of comparatively recent application. Moreover, considerable areas included as forests in the newer countries contain indigenous growth of little or no commercial value, and effective comparisons cannot, therefore, be made with countries where efficient forestry has been practised for many years.

## FORESTS : AREA AND OWNERSHIP, VARIOUS COUNTRIES.

Country.	Forest Area.	Per cent. of Total Area.	Percentage Owned by—		
			State.	Public Institutions other than State.	Privately.
	Sq. miles.	Per cent.	Per cent.	Per cent.	Per cent.
U.S.S.R. (Russia) .. .. .	3,667,530	44.7	100.0	..	..
Canada .. .. .	1,151,402	32.8	(a)	(a)	(a)
United States of America .. .. .	733,539	24.7	(a)	(a)	(a)
India .. .. .	307,928	27.5	(a)	(a)	(a)
Nigeria .. .. .	234,990	63.8	(a)	(a)	(a)
Finland .. .. .	97,540	73.5	39.8	1.7	58.5
Sweden .. .. .	89,500	56.5	20.1	3.8	76.1
Japan .. .. .	87,678	59.5	(a)	(a)	(a)
Germany .. .. .	49,991	27.5	32.6	17.2	50.2
France .. .. .	40,768	19.2	13.9	23.6	62.5
Poland .. .. .	32,246	21.5	36.1	..	63.9
<b>Australia (b)</b> .. .. .	<b>30,469</b>	<b>1.0</b>	(a)	(a)	(a)
Yugoslavia .. .. .	29,504	30.6	37.5	28.9	33.6
Norway .. .. .	29,454	24.7	13.0	6.4	80.6
Turkey .. .. .	28,703	9.7	94.4	..	5.6
Rumania .. .. .	27,544	24.2	30.5	18.3	51.2
Italy .. .. .	22,425	18.7	3.0	34.0	63.0
New Zealand .. .. .	20,778	20.2	(a)	(a)	(a)
Spain .. .. .	19,305	10.0	(a)	(a)	(a)
Czechoslovakia .. .. .	17,925	33.0	20.4	15.6	64.0
Union of South Africa .. .. .	15,958	3.4	(a)	(a)	(a)
Algeria .. .. .	12,257	10.7	(a)	(a)	(a)
Austria .. .. .	12,116	37.4	15.7	12.6	71.7
Dutch East Indies .. .. .	11,737	23.1	(a)	(a)	(a)
Bulgaria .. .. .	11,469	28.8	23.0	58.8	18.2
Greece .. .. .	9,291	18.5	69.3	10.3	20.4
Latvia .. .. .	6,406	25.2	83.6	1.8	14.6
Great Britain .. .. .	4,745	5.4	10.4	1.3	88.3

(a) Not available.

(b) Estimate of forest area possible for permanent reservation.

3. **Requisite Proportion of Forest Area.**—It is generally held that when the forest area in any country falls below 0.86 acres per head of population, that country will be obliged to import timber. Australia possesses 2.8 acres of forest per head of population and normally the excess of imports of timber over exports amounts to approximately 28,000,000 cubic feet. There are two reasons for the excess. In the first place, the area of 19,500,000 acres given as the wooded area comprises all forest lands, reproductive or otherwise. The bulk of this area consists of cut-over forests swept by fire at frequent intervals, and the area of really productive forests has not been ascertained. Secondly, Australia does not possess a sufficient supply of softwoods, and must, therefore—with the exception of a small quantity produced in Queensland, New South Wales and South Australia—import the bulk of its requirements from overseas. Provided that the area of 19,500,000 acres, considered possible of permanent reservation by foresters, was yielding under silvicultural treatment its maximum of hard and soft woods, the timber supply of Australia would be sufficient for a population of 22½ millions.

## § 2. Forestry Activities of the Commonwealth Government.

Forestry was not included amongst the matters transferred from the States to the control of the Commonwealth, and federal supervision, therefore, is restricted to the forests in the Australian Territories. These territories (including Papua, New Guinea and Norfolk Island) cover a large area, and, with the exception of the Northern Territory,

are capable of sound forestry development. It is only within comparatively recent years, however, that any attempt has been made to take stock of the forestry position. The Commonwealth Forestry Bureau was instituted in 1925 to initiate silvicultural and other forest research work and to provide for the education and training of the professional staffs required by the Commonwealth and the State services. The Bureau received statutory powers under an Act passed in 1930. In the meantime, the Australian Forestry School was established in 1926, and not only was the training of the State forest officers begun, but a nucleus of qualified officers was sent abroad to undergo special courses of instruction with the object of staffing the research side of the Bureau. The financial situation in 1930 and following years delayed progress on the research side, and the Australian Forestry School was the Bureau's main activity. Since then, however, the research work of the Bureau has been developed, and stations established in South Australia and Tasmania on a co-operative basis with the State Forestry services.

The forest resources of the Territories of Papua, New Guinea, Norfolk Island and the Australian Capital have been investigated, and reports in connexion with these have been published. In the case of the Australian Capital area an active forest policy is being developed.

The investigation of the dead product of the forests is entrusted to the Council for Scientific and Industrial Research, which has established a Forest Products Division. Research work is being carried out by this institution in regard to various matters, e.g., paper pulp, seasoning, preservation, tan barks, the chemistry of woods, and the utilization of forest products generally, including the substitution of local for imported woods for such purposes as wood pulp, butter boxes and fruit cases.

### § 3. 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.

Annual reports are issued by each State forest authority.

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

2. **Forest Reservations.**—At the Interstate Forestry Conference held at Hobart in 1920, the State forestry authorities agreed in regard to the necessity of reserving an area of 24,500,000 acres of indigenous forest lands in order to meet the future requirements of Australia but, as previously mentioned, it is the considered opinion of expert foresters that 19.5 million acres only are possible of permanent reservation. The area distributed among the States is set out in § 1, 2 *ante*.

Having been endorsed by the Premiers' Conference held later in the same year, this area was adopted as the Australian forest requirement towards the permanent reservation of which the authorities are now aiming. The progress made in the various States to the end of June, 1943, is shown in the following table:—

AREA OF FOREST RESERVATIONS, 30th JUNE, 1943.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Total.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Dedicated State forests ..	5,315,978	4,904,364	3,281,428	(a) 269,496	3,367,216	1,432,084	18,570,566
Timber and fuel reserves ..	1,335,905	(b)	3,097,548	..	2,159,776	(c) 313,814	66,907,043
Total ..	6,651,883	4,904,364	6,378,976	269,496	5,526,992	1,745,898	25,477,609

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

In addition to the work of permanently reserving their respective areas the 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 area of State forests reserved in perpetuity amounted in June, 1943, to 18,570,566 acres, or 95 per cent. of the area considered possible of permanent reservation in Australia. Of this area a considerable proportion consists of inaccessible mountainous country and cut-over lands, while the Australian area recommended refers to merchantable forest only. The foresters of Australia are, therefore, faced with a difficult task in improving and preserving the existing forests, and in securing the reservation of further suitable forest country to ensure a permanent supply.

The Forestry Departments also control 6,907,043 acres of 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.

3. *Sylvicultural Nurseries and Plantations.*—Recognition of the necessity for providing by systematic sylviculture for the future softwood timber needs has led to the creation in all of the States of a number of nurseries and plantations. A brief statement showing the locality of these establishments and the nature of their activities will be found in previous issues of the Official Year Book. (See Official Year Book No. 6, pp. 451-3.) Details regarding forest plantations and the number of persons employed are shown as follows:—

#### FORESTRY : AREAS AND EMPLOYMENT, 1942-43.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tas.	Total.
Total area of indigenous forest improved or regenerated acres	1,417,637	1,046,824	428,816	9,928	525,846	2,600	3,431,651
Total area of effective plantations—							
Hardwoods .. acres	373	2,500	2,713	3,975	(a)15,785	375	25,721
Softwoods .. "	40,061	46,363	29,806	99,275	13,488	1,600	230,593
Number of persons employed in Forestry Departments—							
Office staff .. No.	2041	60	87	43	36	37	467
Field staff .. "	104	154	515	412	(b)402	59	1,646

(a) Mallet—mainly for bark tanning. Allied Works Council.

(b) Includes 149 casual hands and 120 aliens under

4. *Revenue and Expenditure.*—The revenue and expenditure of State Forestry Departments from 1938-39 to 1942-43 are given below:—

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

State.	1938-39.	1939-40.	1940-41.	1941-42.	1942-43.
REVENUE.					
	£	£	£	£	£
New South Wales ..	224,266	244,993	306,809	393,202	467,942
Victoria ..	198,157	218,961	325,500	421,086	630,018
Queensland ..	764,557	888,360	955,915	959,220	927,982
South Australia ..	101,312	110,897	170,323	240,442	291,403
Western Australia ..	145,724	151,770	161,253	158,692	190,238
Tasmania ..	32,765	33,241	36,087	40,942	50,418
Total ..	1,466,781	1,648,222	1,955,887	2,213,584	2,558,001

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

State.	1938-39.	1939-40.	1940-41.	1941-42.	1942-43.
<b>EXPENDITURE.</b>					
	£	£	£	£	£
New South Wales ..	250,355	191,086	229,009	528,393	517,621
Victoria(a) ..	406,175	475,517	615,165	741,928	1,088,020
Queensland ..	764,545	865,288	816,918	814,724	691,691
South Australia ..	182,633	222,915	228,244	261,089	238,791
Western Australia(b) ..	164,943	154,870	153,688	128,993	176,857
Tasmania ..	71,437	70,852	68,775	71,679	60,263
Total ..	1,840,088	1,980,528	2,111,799	2,546,806	2,773,243

(a) Includes expenditure from Relief Works, 1938-39, £167,611; 1939-40, £148,125; 1940-41, £49,798; 1941-42, £5,136; 1942-43, £72. (b) Includes expenditure from General Loan and Trust Funds, 1938-39, £136,254; 1939-40, £126,174; 1940-41, £124,542; 1941-42, £100,537; 1942-43, £98,908.

In South Australia, with fewer forestry resources than the other States, a progressive policy of afforestation has been followed over the past 66 years and extensive areas planted with softwoods. In 1942-43 the revenue from forests in this State for the first time exceeded expenditure.

#### § 4. The Australian Forestry School.

The Australian Forestry School situated at Canberra in the Australian Capital Territory was established in 1926 by the Commonwealth Government to meet the demand of the States for an institution which would give a professional training at least equal to that afforded by the recognized forestry schools abroad.

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 possession of a nomination by a State government service is not, however, essential for 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 or Sydney, 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.

### § 5. Forest Congresses.

References to the various Forestry Conferences held in Australia and elsewhere are given in Official Year Book No. 22, p. 743. The First British Empire Forestry Conference was held in London in 1920. Subsequent Conferences were held in Ottawa 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. Publications issued in connexion with these Conferences are available on application to the various State and Commonwealth forestry authorities.

### § 6. Forestry Production.

1. Timber.—Particulars regarding logs treated and the production of rough sawn timber in forest sawmills in each State for the year 1942-43 are shown in the following table :—

#### OUTPUT OF NATIVE TIMBER : FOREST SAWMILLS, 1942-43.

Particulars.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Total.
LOGS TREATED INCLUDING THOSE SAWN ON COMMISSION.							
Hardwood	'000 sup. feet. 165,886	'000 sup. feet. 188,244	'000 sup. feet. 130,129	'000 sup. feet. 6,652	'000 sup. feet. 273,466	'000 sup. feet. 140,428	'000 sup. feet. 904,805
Softwood	85,206	33,040	141,894	46,236	1,492	4,150	312,018
Total	251,092	221,284	272,023	52,888	274,958	144,578	1,216,823

#### ROUGH SAWN TIMBER PRODUCED FROM LOGS ABOVE.

	'000 sup. feet.						
Hardwood	110,675	106,065	82,659	3,148	107,616	86,850	497,013
Softwood	52,646	23,619	98,544	25,770	596	3,014	204,189
Total	163,321	129,684	181,203	28,918	108,212	89,864	701,202

The next table gives the sawn output of native timber in both forest and town sawmills and in joinery works, box and case factories and other woodworking establishments in each State for the last five years.

#### SAWN OUTPUT OF NATIVE TIMBER : ALL MILLS.

State.	1938-39.	1939-40.	1940-41.	1941-42.	1942-43.
	'000 sup. feet.				
New South Wales	179,350	191,583	219,020	256,145	250,018
Victoria	120,197	138,634	174,018	194,374	182,045
Queensland	193,250	210,375	209,609	218,413	185,713
South Australia	14,537	19,232	23,019	30,007	35,194
Western Australia	125,453	117,819	115,219	119,731	109,377
Tasmania	84,228	79,330	84,749	95,005	93,381
Total	717,015	756,973	825,634	913,675	855,728

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 outside forest sawmills, but the figures have not been included in the preceding two tables. The quantities so produced in the last five years were as follows:—1938–39, 35,862,540 sup. feet; 1939–40, 34,844,172 sup. feet; 1940–41, 31,659,666 sup. feet; 1941–42, 26,295,114 sup. feet; and 1942–43, 20,664,828 sup. feet. The annual reports of the Forest Departments of the States contain particulars concerning 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.

2. **War Time Control of Timber.**—Because of its importance to the war effort of Australia, the supply of timber, immediately on the outbreak of war, came under the control of the Department of Munitions. With the increasing importance of timber as a raw material in the production of munitions, and for defence construction, 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 have been issued restricting the use of certain timbers.

3. **Stocks of Timber, Logs and Sawn.**—Particulars are given below of timber stocks held on 30th June, 1943, as reported by mills and other factories included in the wood-working group. These latter establishments include box and case factories and joinery works, etc.

**STOCKS OF TIMBER REPORTED BY FACTORIES, 30th JUNE, 1943.**

State.	Logs.			Sawn Timber.		
	Hardwood.	Softwood.	Total.	Hardwood.	Softwood.	Total.
	'000 sup. feet.					
New South Wales	6,570	4,595	11,165	(a)	(a)	41,347
Victoria ..	7,372	1,080	8,452	34,302	9,672	43,974
Queensland(b) ..	5,259	2,347	7,606	1,620	5,002	6,622
South Australia	143	2,708	2,851	6,714	9,132	15,846
Western Australia	1,907	..	1,907	24,771	261	25,032
Tasmania ..	3,587	55	3,642	14,285	59	14,344
<b>Total ..</b>	<b>24,838</b>	<b>10,785</b>	<b>35,623</b>	<b>(c)81,692</b>	<b>(c)24,126</b>	<b>147,165</b>

(a) Not available.

(b) Incomplete.

(c) Excludes New South Wales.

4. **Paper and Wood Pulp.**—(i) *Tasmania.* During recent years 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 at Burnie in August, 1938, from imported pulp 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 1941-42, 43,372 cords of pulp wood and 37,530 cords of firewood were delivered to these mills.

(ii) *Victoria.* In Victoria the production of wood pulp for papermaking 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 are used. Kraft wrapping papers are produced and recently the production of cellulose for the manufacture of explosives has been undertaken. During 1941-42 the wood taken from Crown Lands for this mill amounted to 405,935 cubic feet.

(iii) *South Australia.* In South Australia a pulp and paper mill commenced operations during 1941-42 at Mount Burr. When completed and in full production the mill will use considerable quantities of softwoods from the Mount Burr and Penola pine plantations. During 1941-42, 757,857 super. feet of softwoods from State forests were supplied to the mill and a small quantity of cellulose, for the manufacture of explosives, was produced. In addition during 1941-42, 8,696,503 super. feet of pulp wood from the softwood plantations of South Australia were exported to Victoria for conversion into pulp.

**5. 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 1941-42 the quantity of plywood produced amounted to 21,979,316 super. feet (solid) and veneers to 3,825,059 super. feet (solid). Since the commencement of the war the peeling of logs for the production of match board and sticks has been carried out in both Victoria and South Australia. In South Australia specially selected logs from the plantations of exotic softwoods are used, while in Victoria use has been made of both plantation softwood and indigenous hardwoods.

(ii) *Charcoal.* As a result of restrictions on the use of petrol, due to the war, a considerable demand has arisen for substitute fuels. The use of producer gas units on mobile vehicles has been encouraged by the Commonwealth Government and special efforts were made to increase the production of charcoal for use in them. Research was carried out by the Forestry and other Departments in each State, and information prepared for the guidance of producers. This resulted in greatly increased production.

(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 1937-38 to £94,538; in 1938-39 to £86,714; in 1939-40 to £130,422; in 1940-41 to £184,175; and in 1941-42 to £208,282. The bulk of the product is shipped from Victoria to the United Kingdom and the United States of America. 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 Eastern 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) § 8. 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 1937-38 to £18,882; in 1938-39 to £13,964; in 1939-40 to £22,485; in 1940-41 to £8,864; and in 1941-42 to £22,187.

(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 1941-42 amounted to 889 tons, whilst the exports from Australia amounted to 693 tons valued at £6,888 during the same period.

(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 § 8 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 the 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 (*Eucalyptus calophylla*) bark is not yet complete. The production of tan bark in Australia is estimated to exceed 25,000 tons per annum.

6. Value of Production—Gross and Net.—(i) *General.* As the outcome of a series of conferences of Australian Statisticians it is now possible to present the value of forestry production on a more satisfactory basis than was possible hitherto, but the relative proportions of marketing costs to gross production suggest that complete uniformity in method has not yet been obtained. Provision is made for the inclusion of all phases of forestry output, including forest sawmills, the production of logs, poles, piles, sleepers and other hewn timber, firewood, sandalwood and gums and resins. All of these items are not yet collected in all the States, but the omissions are not serious.

## GROSS, LOCAL AND NET VALUE OF FORESTRY PRODUCTION, 1942-43.

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)
	£	£	£	£	£
New South Wales ..	3,348,000	193,000	3,155,000	..	3,155,000
Victoria ..	2,985,828	399,528	2,586,300	304,268	2,282,032
Queensland ..	2,708,000	380,000	2,328,000	..	2,328,000
South Australia ..	1,084,958	73,467	1,011,491	..	1,011,491
Western Australia ..	1,638,701	214,275	1,424,426	1,644	1,422,782
Tasmania ..	873,420	59,480	813,940	..	813,940
Total ..	12,638,907	1,319,750	11,319,157	305,912	11,013,245

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

(ii) *States 1933-34 to 1942-43.* In the following table the net value of forestry production and the net value per head of population are given by States for each year since 1933-34.

## NET VALUE OF FORESTRY PRODUCTION.

Year.	N.S.W.	Vic.	Qld.	S.A.	W.A.	Tas.	Total.
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## NET VALUE. (a)

	£	£	£	£	£	£	£
1933-34 ..	1,737,000	588,837	1,334,088	488,069	729,796	259,360	5,137,150
1934-35 ..	1,922,000	664,800	1,988,751	523,786	1,012,261	325,750	6,437,348
1935-36 ..	2,014,000	692,209	2,076,000	525,936	1,135,851	363,600	6,807,596
1936-37 ..	2,096,000	731,777	2,186,000	570,692	1,314,152	407,300	7,305,921
1937-38 ..	2,179,000	1,029,174	2,514,000	570,199	1,272,707	431,200	7,996,280
1938-39 ..	2,261,000	1,067,732	2,362,000	542,465	1,147,335	399,500	7,780,032
1939-40 ..	2,347,000	1,108,864	2,531,000	605,419	1,087,734	452,520	8,132,537
1940-41 ..	2,576,000	1,355,402	2,734,000	693,162	1,322,138	516,000	9,196,702
1942-42 ..	3,159,000	1,594,643	2,423,000	879,332	1,272,606	722,100	10,050,681
1942-43 ..	3,155,000	2,282,032	2,328,000	1,011,491	1,422,782	813,940	11,013,245

## NET VALUE PER HEAD OF MEAN POPULATION.

	£ s. d.						
1933-34 ..	0 13 3	0 6 5	1 8 1	0 16 9	1 13 2	1 2 8	0 15 5
1934-35 ..	0 14 7	0 7 3	2 1 5	0 17 11	2 5 8	1 8 5	0 19 3
1935-36 ..	0 15 2	0 7 6	2 2 8	0 17 11	2 10 9	1 11 7	0 1 2
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 3 1	2 15 11	2 3 0	0 1 6
1941-42 ..	1 2 7	0 16 4	2 6 8	1 9 0	2 14 4	3 0 2	1 8 2
1942-43 ..	1 2 3	1 3 2	2 4 8	1 13 0	2 19 3	3 7 5	1 10 7

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

7. *Employment.*—(i) *Census Returns.* The number of persons employed in forestry operations as revealed by the Census of the Commonwealth of Australia at the 30th June, 1933, is shown in the following table :—

EMPLOYMENT IN FORESTRY, 30th JUNE, 1933.

Sex.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Total. (a)
	No.	No.	No.	No.	No.	No.	No.
Males ..	6,446	7,225	4,054	1,549	4,189	2,376	25,839
Females ..	38	29	27	8	7	5	114
Total ..	6,484	7,254	4,081	1,557	4,196	2,381	25,953

(a) Excludes Northern Territory, N.T., and Australian Capital Territory, 152.

(ii) *Logging Operations : Forest Sawmills.* Particulars of employment and costs of logging operations in the forests are given for each State in the following table. These data have been compiled from the details furnished by those establishments which are defined as a forest sawmill as distinct from those defined as town sawmills.

FOREST SAWMILLS : LOGGING OPERATIONS, 1942-43.

Particulars.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	Total.
Number of men employed							
No.		(a)	479	58	781	727	
Value of wages paid		207,951	75,101	19,032	230,915	153,919	
Other Costs		148,584	141,841	64,743	114,027	130,922	
Value of Royalties, etc., paid		157,146	129,438	120,204	126,530	41,633	
Period worked by men above		(a)	9.42	10.12	11.59	10.06	

(a) Not available.

(iii) *Mill Workers : Forest Sawmills.* Details of the number employed in the milling operations of these forest sawmills are given in the next table. Further details regarding the operations of these mills are given in Chapter XIX. "Manufacturing Industry".

FOREST SAWMILLS : MILL WORKERS, 1942-43.

Sex.	N.S.W.	Victoria.	Q'land. (a)	S. Aust.	W. Aust.	Tasmania.	Total.
	No.	No.	No.	No.	No.	No.	No.
Males ..	2,852	1,867	4,597	493	1,741	1,526	13,076
Females ..	76	21	154	32	16	18	317
Total ..	2,928	1,888	4,751	525	1,757	1,544	13,393

(a) Includes town sawmills.

§ 7. 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.

A list of Australian timbers best known on the local markets appeared in Official Year Book No. 20, p. 713. [Further references are made in "Timber and Forest Products of Queensland" (E. H. F. Swain), published in 1928].

2. *Lack of Uniformity in Nomenclature.*—Unfortunately 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. The resulting confusion has not only been productive of loss, but it has, to some extent, prejudicially affected

the timber trade. This subject is referred to at some length in the special article "Australian Eucalyptus Timbers" in Section III., §§ 7 and 8, of Official Year Book No. 10. At the Forestry Conferences previously mentioned, the matter came up for special consideration, and steps were taken to establish a uniform nomenclature.

### § 8. Oversea Trade.

1. Imports.—(i) *Dressed Timber*. The quantities and values of timber imported into Australia during the four years 1938-39 to 1941-42 inclusive are shown according to countries of origin in the following table:—

Country of Origin.	Quantity.				Australian Currency Values.			
	1938-39.	1939-40.	1940-41.	1941-42.	1938-39.	1939-40.	1940-41.	1941-42.
	sup. ft.	sup. ft.	sup. ft.	sup. ft.	£A.	£A.	£A.	£A.
United Kingdom ..	551	105	3	..	48	4	1	..
Canada .. ..	8,926,950	8,043,430	2,195,759	2,590,844	99,797	101,677	42,462	41,458
New Zealand ..	..	..	38,923	390,439	..	..	1,194	12,840
Other British Countries ..	2,576	153	..	39,648	23	4	..	1,063
Norway .. ..	4,209,070	2,038,527	..	..	47,570	24,314	..	..
Sweden .. ..	1,977,921	1,015,839	..	..	26,687	16,322	1	..
U.S. of America ..	2,242,023	1,451,228	850,404	..	24,203	18,975	15,330	..
Other Foreign Countries	418,439	23,279	..	..	6,771	2,289	..	..
<b>Total .. ..</b>	<b>17,777,521</b>	<b>12,572,561</b>	<b>3,085,089</b>	<b>3,020,931</b>	<b>205,099</b>	<b>163,585</b>	<b>58,988</b>	<b>55,361</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 £48,234 in 1941-42.

Prior to the war the bulk of the imports of dressed timber came from Canada, Norway, Sweden and the United States of America; but since the outbreak of the war increased quantities have been imported from New Zealand. Practically the whole of this timber consists 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 to 1941-42 are given hereunder:—

Country of Origin.	Quantity.				Australian Currency Values.			
	1938-39.	1939-40.	1940-41.	1941-42.	1938-39.	1939-40.	1940-41.	1941-42.
	'000 sup. ft.	'000 sup. ft.	'000 sup. ft.	'000 sup. ft.	£A.	£A.	£A.	£A.
United Kingdom ..	115	52	62	85	10,969	5,674	1,981	3,171
Canada .. ..	296,948	216,716	59,880	35,068	1,225,650	1,169,472	427,880	292,513
India .. ..	7	39	..	287	..	1,085	..	..
Malaya (British) ..	165	132	214	401	1,389	1,035	1,159	540
New Zealand .. ..	11,193	15,328	16,244	10,632	173,556	213,721	227,515	160,287
Other British Countries ..	10,840	7,881	11,693	6,680	75,136	62,248	91,499	53,260
Japan .. ..	374	377	139	..	8,439	8,418	4,401	..
Netherlands East Indies ..	20	1	1,987	..	130	4	9,641	..
Norway .. ..	21	1	..	..	385	145	..	..
New Caledonia .. ..	1,671	1,236	837	94	6,368	7,135	5,432	686
Philippine Islands ..	6,879	4,584	2,270	2,365	72,921	60,890	29,644	27,629
Sweden .. ..	4,654	972	..	..	40,592	8,997	3	..
United States of America ..	12,245	25,205	6,885	1,454	210,092	305,685	99,495	34,255
Other Foreign Countries ..	2,966	2,351	375	4,282	29,022	22,252	4,046	28,447
<b>Total .. ..</b>	<b>348,098</b>	<b>274,875</b>	<b>100,586</b>	<b>60,700</b>	<b>1,854,936</b>	<b>1,866,761</b>	<b>902,696</b>	<b>602,788</b>

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

By far the larger proportion of the undressed timber imports consists of softwoods 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.* The quantity and value of undressed timber exported from 1938-39 to 1941-42 are given below, together with the countries of destination.

UNDRESSED TIMBER, INCLUDING LOGS (a) : EXPORTS FROM AUSTRALIA.

Country to which Exported.	Quantity.				Value.			
	1938-39.	1939-40.	1940-41.	1941-42.	1938-39.	1939-40.	1940-41.	1941-42.
	'000 sup. ft.	'000 sup. ft.	'000 sup. ft.	'000 sup. ft.	£A.	£A.	£A.	£A.
United Kingdom ..	11,750	9,251	8,352	1,650	137,927	110,094	85,135	19,971
Canada ..	223	212	427	355	4,723	4,777	9,027	8,869
Ceylon ..	535	797	39	..	5,563	7,905	392	..
Hong Kong ..	98	..	..	21	1,058	..	..	502
India ..	..	..	4	..	..	..	101	..
Mauritius ..	354	305	162	60	4,520	3,051	1,621	603
New Zealand ..	17,145	10,647	8,861	7,716	245,194	151,500	142,281	148,270
Pacific Islands—								
Fiji ..	838	793	654	329	15,570	12,722	7,720	7,425
Gilbert and Ellice Islands								
Colony ..	63	59	52	14	1,076	1,006	881	350
Papua ..	219	137	430	589	3,458	2,428	8,059	16,487
Solomon Islands ..	143	86	103	48	2,279	1,586	2,217	904
Territory of New Guinea	131	4	18	24	1,970	43	347	307
Other Islands ..	243	529	94	7	5,118	15,394	2,082	164
Union of South Africa ..	7,164	5,470	3,804	2,073	80,668	62,127	42,955	26,994
Other British Countries ..	108	84	241	1,079	1,299	1,245	3,128	18,470
Africa, Portuguese East ..	415	..	79	..	5,023	..	1,316	..
Belgium ..	1,286	33	..	..	19,347	505	..	..
China ..	271	537	22	..	2,322	5,494	505	..
Egypt ..	718	1,690	6,475	2,573	7,186	14,841	77,722	36,041
Germany ..	648	102	..	..	9,989	2,285	..	..
Netherlands ..	234	..	..	..	2,875	..	..	..
Pacific Islands—								
New Caledonia ..	73	196	26	19	1,330	1,743	414	479
New Hebrides ..	49	..	34	16	819	..	978	714
Other Islands ..	21	133	49	38	537	3,247	1,253	1,391
United States of America	867	1,624	1,178	476	26,506	56,162	41,065	13,119
Other Foreign Countries ..	201	1,008	..	1,784	2,389	10,803	..	19,340
Australian Produce ..	43,797	33,697	31,104	18,871	588,746	468,958	429,199	320,400
Other Produce ..	541	1,363	1,765	582	6,079	19,604	30,985	11,842
Total ..	44,338	35,060	32,869	19,453	594,825	488,562	460,184	332,242

(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) *Sleepers*. Particulars of the quantities and values of sleepers exported are now excluded from the previous table relating to undressed timber, including logs. These details are shown in the following table :—

## RAILWAY SLEEPERS : EXPORTS FROM AUSTRALIA.

Country to which Exported.	Quantity.				Value.			
	1938-39.	1939-40.	1940-41.	1941-42.	1938-39.	1939-40.	1940-41.	1941-42.
	'000 sup. ft.	'000 sup. ft.	'000 sup. ft.	'000 sup. ft.	£A.	£A.	£A.	£A.
United Kingdom .. ..	1,438	4,880	2,431	..	14,467	50,772	24,965	..
Ceylon .. ..	5,334	5,834	3,216	..	53,339	58,336	32,156	..
Hong Kong .. ..	..	..	117	27	..	..	1,022	497
Mauritius .. ..	563	638	308	212	6,216	6,375	3,085	2,120
New Zealand .. ..	16,896	5,062	3,094	7,486	165,303	53,893	38,690	115,167
Pacific Islands (British) ..	201	269	220	216	2,341	3,406	3,029	2,664
Union of South Africa ..	4,941	879	11,491	6,477	49,412	8,798	114,914	69,048
Other British Countries ..	..	..	5,152	1,941	..	..	51,528	26,964
Egypt .. ..	4,198	9,999	1,684	7,204	41,986	99,997	16,841	77,371
Iran (Persia) .. ..	271	..	..	..	2,707	..	..	..
Iraq .. ..	165	..	..	7,957	1,696	..	..	85,783
Other Foreign Countries ..	29	57	..	..	291	1,000	..	..
Total .. ..	34,036	27,618	27,713	31,520	337,758	282,577	286,230	379,614
Number of Sleepers '000	1,268	903	836	1,186	..	..	..	..

3. Classification of Imports and Exports.—(i) *General*. The quantities of timber according to varieties imported and exported during the year 1941-42 are given in the following table :—

## TIMBER : VARIETIES IMPORTED AND EXPORTED FROM AUSTRALIA, QUANTITIES, 1941-42.

Description.	Unit of Quantity.	Imports.	Exports.	Excess of Imports over Exports.
Dressed .. ..	Sup. ft.	3,020,931	380,543	2,640,388
Undressed, including logs ..	..	60,699,972	19,453,269	41,246,703
Sleepers .. ..	..	(a)	31,519,669	-31,519,669
Architraves, mouldings, etc. ..	Lin. ft.	..	10,089	- 10,089
Plywood, veneered or otherwise ..	Sq. ft.	..	8,203,913	- 8,203,913
Palings .. ..	No.	..	23,840	- 23,840
Shingles .. ..	..	..	..	..
Staves—	..	..	..	..
Dressed, etc. .. ..	..	113,621	..	113,621
Undressed .. ..	..	77,005	..	77,005
Laths—	..	..	..	..
For blinds .. ..	..	..	..	..
Other .. ..	..	..	..	..
Doors .. ..	..	..	(b)	(b)
Wood pulp .. ..	Ton	(c) 41,422	(a)	(c) 41,422
Veneers .. ..	Sq. ft.	3,931,894	5,678,198	- 1,746,304
Spokes, rims, felloes, etc. ..	No.	..	(b)	(b)
Other .. ..	..	(b)	(b)	(b)

(a) Not recorded separately. (b) Quantity not available. (c) Excludes wood pulp—mechanical.

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

Similar particulars relative to the values of imports and exports during the year 1941-42 are shown hereunder:—

**TIMBER : VARIETIES IMPORTED AND EXPORTED FROM AUSTRALIA,  
VALUES, 1941-42.**

Description.	Imports.	Exports.	Excess of Imports over Exports.
	£A.	£A.	£A.
Dressed .. .. .	55,361	10,118	45,243
Undressed, including logs .. .. .	600,788	332,242	268,546
Sleepers .. .. .	(a)	379,614	- 379,614
Architraves, mouldings, etc. .. .. .	..	122	- 122
Plywood, veneered or otherwise .. .. .	..	102,555	- 102,555
Palings .. .. .	..	286	- 286
Shingles .. .. .	..	..	..
Staves—			
Dressed, etc. .. .. .	6,123	..	6,123
Undressed .. .. .	7,673	..	7,673
Laths—			
For blinds .. .. .	..	..	..
Other .. .. .	..	..	..
Doors .. .. .	..	2,102	- 2,102
Wood pulp .. .. .	(b)1,067,443	(a)	1,067,443
Veneers .. .. .	31,142	34,012	- 2,870
Spokes, rims, felloes, etc. .. .. .	..	1,054	- 1,054
Other .. .. .	10,969	..	10,969
<b>Total .. .. .</b>	<b>1,779,499</b>	<b>862,105</b>	<b>917,394</b>

(a) Not recorded separately.

(b) Includes wood pulp—mechanical, £161,581.

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 last four years are as follows:—

**SANDALWOOD : EXPORTS FROM AUSTRALIA.**

Country to which Exported.	Quantity.				Value.			
	1938-39.	1939-40.	1940-41.	1941-42.	1938-39.	1939-40.	1940-41.	1941-42.
	Tons.	Tons.	Tons.	Tons.	£A.	£A.	£A.	£A.
Hong Kong .. .. .	806	1,040	474	522	18,709	35,898	16,732	18,642
India .. .. .	25	30	25	..	842	1,290	1,125	..
Malaya (British) .. .. .	97	160	396	42	3,149	6,340	14,015	1,949
Other British Countries .. .. .	17	8	11	25	545	352	495	1,104
China .. .. .	686	226	784	171	18,511	8,134	28,956	1,577
Other Foreign Countries .. .. .	17	8	8	..	574	360	360	..
<b>Total .. .. .</b>	<b>1,648</b>	<b>1,472</b>	<b>1,698</b>	<b>760</b>	<b>42,330</b>	<b>52,374</b>	<b>61,683</b>	<b>23,272</b>

(iii) *Tan Bark.* Tan bark figures both as an export and an import in the Australian trade returns. The following table refers to exports for the four years ended 1941-42 :—

**TAN BARK : EXPORTS FROM AUSTRALIA.**

Country to which Exported.	Quantity.				Value.			
	1938-39.	1939-40.	1940-41.	1941-42.	1938-39.	1939-40.	1940-41.	1941-42.
	Cwt.	Cwt.	Cwt.	Cwt.	£A.	£A.	£A.	£A.
United Kingdom .. .. .	..	..	..	..	..	..	..	..
New Zealand .. .. .	7,620	3,145	618	421	3,897	1,884	318	236
Other British Countries .. .. .	40	..	18	..	27	..	20	..
Germany .. .. .	8,251	..	..	..	3,582	..	..	..
Other Foreign Countries .. .. .	2,309	740	..	..	1,124	460	..	..
<b>Total .. .. .</b>	<b>18,220</b>	<b>3,885</b>	<b>636</b>	<b>421</b>	<b>8,630</b>	<b>2,344</b>	<b>338</b>	<b>236</b>

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 is the chief source of supply.

A comparison of the imports and exports of tan bark during the last five years is given in the following table :—

**TAN BARK : IMPORTS AND EXPORTS, AUSTRALIA.**

Particulars.	1937-38.	1938-39.	1939-40.	1940-41.	1941-42.
<b>QUANTITIES—</b>	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Imports .. .. .	7,361	6,199	21,981	14,063	50,370
Exports .. .. .	15,355	18,220	3,885	636	421
Excess of exports over imports	7,994	12,021	-18,096	-13,427	-49,949
<b>VALUES—</b>	£A.	£A.	£A.	£A.	£A.
Imports .. .. .	3,145	2,548	10,141	7,737	26,328
Exports .. .. .	7,572	8,630	2,344	338	236
Excess of exports over imports	4,427	6,082	-7,797	-7,399	-26,092

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

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) there is an abundance of cheap and efficient native labour.

(iv) *Other Tanning Substances.* Considerable quantities of tanning substances other than bark are annually imported into Australia. The total value in Australian currency of the importations in 1941-42 was £293,470, and was composed as follows :—Tanners' Bates, £2,703; wattle bark extract, £239,110; quebracho extract, £2,570; other extract, £34,305; and valonia, myrobalans, cutch, etc., £14,782.

Exports of tanning extracts from Australia amounted to £58,591 in 1941-42.